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AN IMMUNOLOGICAL CONSIDERATION OF PNEUMONIA AND A DISCUSSION OF THE RATIONAL BASIS FOR VACCINE THERAPY*

BY HANS ZINSSER, M.D.†

PNEUMONIA, as one of the most serious diseases seen by the general practitioner and one in the face of which he has felt most helpless, has naturally engrossed the interest of the immunologists since 1881, when immune rabbit serum was first attempted as a method of specific therapy by the Klemperers. The numerous early studies were all of them necessarily unsatisfactory, for reasons apparent when Neufeld in 1909[1] described the existence of distinct serological types of the pneumococcus—a fact without which pneumococcus serum therapy could of course never become rational. Neufeld then advocated the intravenous administration of "highly potent, type specific sera, injected early in the disease", and these principles, set forth by him in 1912,[2] represent the essentially unchanged point of view of those who are using pneumococcus serum at the present day. Cole and his associates Dochez, Avery and Chickering[3] in this country contributed invaluable information in elaborating the differentiation of types, extending Neufeld's observations and giving us a knowledge of the distribution of pneumococcus types which, except for possibly a so-far inachieved and perhaps impossible classification of Type IV, may be regarded as a permanent orientation of this phase of the problem. Their monograph of 1917, we believe, expresses the state of the problem as a whole in a manner not materially altered by subsequent data. In the section of this monograph which deals with the serum therapy of acute lobar pneumonia, they conclude that serum properly applied is essentially safe; that, for the present, the only type of pneumonia in which the treatment seems definitely effective is Type I; that early treatment is of great importance, and that considerable and repeated doses should be used. It must be noted that these investigators, although working under conditions in many ways superior to those available in general hospitals, and certainly in general practice, were extremely conservative in their conclusions and made few claims that have not been substantiated by subsequent experience. It is of course difficult to appraise collectively the subsequent scattered experience of practitioners, but such studies as those of Bloomfield,[4] of Locke[5] and many others are surprisingly in harmony with the predictions made by Neufeld and by Cole. Locke, particularly, emphasized the importance of treatment during the first three days, and limits his optimism to cases diagnosed at a stage which has been passed by a large proportion of patients by the time that a type diagnosis can be made.

Efforts at improvement during the last few years have largely concentrated on methods of increasing the potency of the type sera. This has been attempted in this country particularly by Huntoon,[6] with his so-called "antibody solutions", and since then by Felton,[7] who precipitates anti-serum with fifteen volumes of distilled water. The eu-globulin precipitate unquestionably contains a high concentration of specific antibodies relatively free from the inactive proteins of the horse serum, and therefore both more potent and less liable to cause serum sickness—volume for volume—than the older forms of antipneumococcus serum. Felton's method is an ingenious and useful step forward, but neither his method nor any other similar device for antibody concentration modifies in any way the principles involved. A recent study by Cecil and Sutliff[8] in which the Felton concentrate and another product, devised by Banzhaf,[9] were used therapeutically, both in the experimental pneumonia of monkeys and in human cases. emphasizes the advantages of these materials in regard to the untoward effects of serum sensitization, but in actual statistical record of comparative death rates between the treated and the untreated, indicates a very slight improvement only—if any—over the results of Cole and others. Such a difference as 30% mortality in the treated, as contrasted with 39.2% in the untreated, for lobar pneumonia as a whole, or 20.9% as against 32.6%, for the untreated in Type I cases—with even less result in Type II cases and no favorable effects whatever in the Type III cases—are indicative of usefulness but do not indicate that the difficulties encountered by Neufeld and by Cole have been overcome. And while we do not wish to under-estimate the value and excellence of the contributions made by Felton and others in regard to the concentration of pneumococcus antibodies, nor

*Remarks made before the Roxbury Clinical Record Club, March 12th, 1929.

From the Department of Bacteriology and Immunology, Harvard University Medical School.

†For record and address of author see "This Week's Issue," page 900.

desire in any way to discourage the use of such preparations in the early treatment of pneumonia—in which it has found a definite place,—we believe it fair to assert that serum therapy in any of these forms seems to have reached the limit of its usefulness. We must ask ourselves, therefore, what are the reasons for this, and—as immunologists—is there anything else that can be done along other lines of specific treatment?

It is plain, as Cole pointed out, that pneumococcus serum acts powerfully and promptly upon organisms that are free in the blood stream, and any bacteriologist who has occupied himself with this problem knows that if one injects even a moderate amount of such serum intravenously into a rabbit in which a pneumococcus septicaemia has progressed to the point where organisms are freely found in the blood stream by smear, the bacteria are promptly agglutinated and as rapidly disappear temporarily from the circulation.* If one wishes to observe this actually, one must act quickly, by taking blood from the oposite ear within a minute or two after one has injected the serum into the other. Otherwise, no organisms will be found. The rabbit, however, eventually goes on to death, if once the disease has gone as far as described, however large an amount of serum one may inject. In normal human beings, as Dochez and many others have shown, there is little, if any, circulating pneumococcus antibody, and in the pneumonia patient the specific antibodies—by agreement of the researches of Neufeld, Chickering,[10] Dochez,[11] and Clough[12]—do not appear, to any measurable degree, until just before, shortly after, or at the time of crisis. Moreover, it seems fairly well established that, although pneumococcus serum, injected into the circulation, promptly suppresses septicaemia and, if repeated, keeps the septicaemia down, and therefore of course contributes materially to the welfare of the patient, it has little or no effect on the progress of the local pulmonary lesion. Furthermore, although the coincidence of the appearance of antibodies with the crisis seems definitely to indicate a connnection between the two processes, the concentration of antibodies at this time is rarely anything like that which is passively induced in patients by the injection of potent sera in large quantities in pneumonia cases and which, nevertheless, often do not induce crisis.

We are confronted with a curious contradiction in the fact that the serum antibodies have an unquestionably powerful effect upon the organisms which cause the disease, and do remove them from the circulation by agglutination and the stimulation of powerful phagocytosis, but influence them hardly at all in their pulmonary foci. And we question very much whether the administration of still greater amounts in the form of the concentrated antibody solutions will alter the situation. It is difficult to explain this situation, except on the basis that the intravascularly administered antibodies do not reach the organisms in the lung in adequate amounts, an opinion which is further strengthened, it seems to us, by the agreement among clinicians that the administration of serum before the third day—in other words, before the pulmonary consolidations have become firmly established— is of incomparably greater benefit than when the serum is given later in the disease.

We have no idea that a satisfactory explanation of this difficulty is at present available, but we believe that some light is thrown on the problem by studies of the vascular conditions existing in the consolidated lung which have been made by numerous pathologists. Kline and Winternitz,[13] in 1915, studied the injection of lungs through the pulmonary artery within a few hours after death. They found that the injection mass remained pale gray, while the non-consolidated area penetrated by the injection material was intensely blue. Experiments of this kind in human lungs and in experimental pneumonia in rabbits indicated with considerable uniformity that there was a distinct impairment of the circulation through the consolidated areas. They analyzed the situation as being dependent upon the formation of fibrin plugs in the capillaries early in pneumonia and that these impaired the circulation in the consolidated lung. They state "The distribution of the fibrin plugs in the vessels of the pneumonic lung of man is relatively uniform throughout and by their interference with the circulation they probably cause the pallor of the lung in gray hepatization." Further below they say: "It is therefore probable that the interference of the circulation in the pneumonic lung is responsible for the restricted action of immune serum in this disease". Armstrong and Gaskell,[14] in 1921, while they differ somewhat from Kline and Winternitz in the analysis of the mechanism of this impaired circulation, also emphasized the effect of such occlusion, attributing it to pressure upon the inter-alveolar capillaries by the exudate. There are still, therefore, many unsolved problems in connection with the circulation of the pneumonic lung, and it is not easy to understand why, under the circumstances, there is not more frequently necrosis of pulmonary tissue; but the fact of impaired circulation after the disease has progressed to a certain point, with consequent isolation of the pulmonary process from antibody concentrations, however great in the general circulation, would seem amply to justify the belief of Kline and Winternitz that the effect of passive serum therapy must necessarily be limited by these conditions.

It would seem, therefore, that both clinical experience and pathological observation should persuade us not to diminish our efforts in specific therapy in the direction of early and ade-

*This point was first thoroughly studied by Bull.

quate administration, but to recognize its definite limitations and turn our immunological efforts in other directions.

One of these is the hope that in pneumococcus infection a true exotoxin may be involved and that an effort should be made to produce sera with an antitoxic element which might further assist the patient in overcoming his pneumococcus infection. This thought was early suggested, among others, by Wadsworth[15] and is encouraged by the recent work of J. T. Parker,[16] but it has not yet reached a stage at which it can be said to constitute a definite prospect of solution of the problem.

We wish particularly in this discussion to analyze the situation from the point of view of active immunization instead of pure serum therapy. We believe that the developments of the last few years have revealed certain immunological conditions in pneumococcus infection which may be considered as furnishing a rational basis for the use of specific vaccines in pneumonia, a matter which hitherto has rested on a purely empirical basis.

Clinicians have given the subject a considerable amount of attention in the last two years. Alexander Lambert[17], in 1926, presented to the American Association of Physicians a series of observations in which he had used a stock vaccine containing a number of organisms, including pneumococci, with partially favourable results on a total series of 221 cases. Observations on the use of vaccine produced from a mixture of a number of virulent strains of pneumococci were made by Wynn[18] of Birmingham, again with favourable results, and papers of a similar significance have been published in America by French[19] and by Sutton[20] within the last year.

The idea of treating pneumonias with vaccine, therefore, has not only been in the minds of physicians for a long time, but is being investigated rather more actively at the present time than it has been since the first enthusiasm for vaccines in general was stimulated by the work of Wright and his associates. We do not, of course, lay too much stress upon the report of favourable observations in the clinic, for it is self-evident that in a disease as variable as pneumonia, only prolonged investigation covering cases in many different parts of the country and in successive annual outbreaks must be studied before any conclusions can be drawn. Five or six years ago, moreover, we would have believed these clinical endeavours to be theoretically unsound on the time-honoured immunological principle that the acutely infected patient was getting an adequate amount of active immunization from the bacteria present in the lesion. In the course of the last few years, however, a thorough re-investigation of the immunological principles of pneumococcus infection has persuaded us that the situation cannot be so simply dismissed and that there may indeed be a rational basis for active immunization in pneumonia due to the peculiar circumstances prevailing in this disease. The observations which particularly persuade us to this view are as follows:

One of our associates, Dr. Goodner,[21] has during the past year made a detailed study of pneumococcus immunity in rabbits, in which it was possible to induce with virulent pneumococci a skin lesion that had close pathological and clinical analogies to human pneumonia. Among other things, the spontaneous appearance of antibodies and the effect of vaccines were studied in these animals. It was found that, as in lobar pneumonia, when occasionally animals recover spontaneously, recovery was accompanied by the appearance of antibodies in the blood stream—an occurrence which, in human lobar pneumonia, as we have stated, takes place just before, during or after crisis. In rabbits a single injection of a Type I pneumococcus vaccine was followed with almost unvaried regularity by the appearance of antibodies on or about the fifth day after the vaccine injection. When rabbits were infected with an ordinarily fatal dose of pneumococci by the intracutaneous route five days after the vaccine injection, they developed practically no disease, either locally or systemically. When they were so infected three days after the vaccine injection, they ran a typical course for one day and the following day came down by crisis and recovered. If two days after the vaccine injection, they ran a course of three days and came down by crisis, again on the fifth day after the vaccine injection, at a time when the appearance of antibodies in the blood was to be expected. If the vaccines were given after the infection, it is true, the course of the disease was not materially affected. This point, which seems discouraging, will be discussed below.

At the same time that Goodner's paper was published, observations of similar significance were published from the laboratories of the Presbyterian Hospital by Alvin L. Barach,[22] and both he and Goodner naturally had in mind the possibility of vaccine treatment in man. In the course of the work going on in our own laboratory during the last two years, the bearing of these experiments upon the possible vaccine treatment in man has of course been extensively discussed, and the significance of this work in correlation with other recently acquired knowledge concerning the pneumococcus and pneumonia has led us to believe that vaccine therapy ought to be given a thorough practical trial.

It is true, as we have said above, that in order to protect the rabbits, the dose of vaccine had to be administered before infection was produced. On the other hand, it must be remembered that in rabbits the susceptibility to pneumococcus is relatively far higher than that of man, and the death rate in rabbits injected intracutaneously with minute amounts of pneu-

mococci titrating no higher than 10^{-6} or 10^{-7} is well over 80%. Death, moreover, comes on in about 6 or 7 days—whereas, even in severe human pneumonias, the course is apt to be considerably longer. There is a fair chance, therefore, that early administration of vaccines in a human case might lead to the reaction which expresses itself in immunity within a period early enough to throw the balance in favour of the patient.

The question immediately arises—why should the additional administration of a moderate dose of vaccine assist materially in a process in which the same organism in large numbers is present in the patient's lungs and is to some extent invading his circulation. This is of course the old objection to vaccine therapy in acute infectious diseases, and has a great deal of weight. On the other hand, it is not at all impossible that in pneumonia, at least, there is much to interfere with auto-immunization of the patient from his own lesion. This possibility is based on the following experimental facts.

It will be remembered that in a continuation of our study of the splitting of the bacterial antigen, the writer, with Tamyia,[23] as well as Avery and his associates, demonstrated that when the pneumococcus undergoes solution, either by autolysis or by treatment with bile, two separate parts of this antigenic complex—the residue substance, as we called it, (or the Soluble Specific Substance, in Avery's nomenclature) and the protein antigen of the organism are separated. The residue or soluble specific substance produces no antibodies whatever, and the protein fraction, while it is antigenic, produces antibodies which react only with this protein fraction, are not type specific, and have little or no significance in the destruction of the organisms themselves. In the lung, considerable autolysis of the pneumococcus takes place, as has been variously demonstrated by Flexner,[24] by Jobling and Petersen,[25] by Lord and Nye[26] and others. Such autolyzed products are indeed absorbed and cause the sensitization of the patient to the protein fraction, as we know from tests which Dr. King of Boston did for us on patients recovering from pneumonia. But these antibodies are not the ones upon which recovery depends. The pneumonia patient whose recovery is undoubtedly a consequence of auto-immunization by the whole antigen (i.e., the organisms) depends for his immunization upon the unautolyzed pneumococci in the lung and upon those that gain access to the circulation. The active immunization, moreover, by which the patient automatically recovers is primarily a cellular process, the appearance of antibodies in the blood stream at the crisis being merely an expression of the changes produced in his tissues.

In recapitulation, therefore, we would not in any sense discourage the use of type serum in cases which come under observation within the early stages of the disease, since we believe that theoretical considerations and both clinical and immunological study have thoroughly justified this procedure as of great benefit. We believe that the Felton concentrate represents a considerable improvement on the older type of immune serum. Why injection of serum later in the disease is relatively ineffective is uncertain. It may be due to pathological changes which seem to prevent access of non-diffusible substances in the circulation to the seat of the pathological process.

However this may be, it is our impression that the persistence in injecting still greater amounts of pneumococcus antibodies in the course of the disease will not overcome the essential difficulties encountered by Neufeld and Cole and all who have followed their methods, and that active immunization with carefully prepared vaccines against at least Types I, II, and III would be a rational procedure, the value of which can only be demonstrated by clinical test. The effects of single injections in rabbits by leading to the appearance of antibodies and to crisis within 5 days after the vaccine injection, as demonstrated by Goodner, and similar observations by Barach, it seems to us are of great significance in encouraging such a procedure. While it is of course true that rabbits cannot be saved if the vaccine is not given at least a day before the infection, we have—counter-balancing this—the relatively higher susceptibility of rabbits and the shorter duration of the illness. In man, where the resistance to pneumococcus is fairly high, and where the development of pneumonia depends as much upon a physiological depression of the resistance of the individual as upon the entrance of the organism, we have a longer period of illness to work with, and the possibility that by vaccination we may be sufficiently increasing the immunizing stimulus which is diminished in the untreated case by the extensive autolysis of pneumococci.

Only extensive clinical test can answer the question however, since it is quite impossible to reproduce exactly in any animal the conditions prevailing in human pneumonia.

REFERENCES

1 Neufeld, F., and Haendal: Arb. a. d. Kais. Gesundheits. Amte., 1910, xxxiv, 166.
2 Neufeld, F., and Haendal: Berl. Klin. Woch., 1912, xlix, 680.
3 Avery, O. T., Chickering, H. T., Cole, R., and Dochez, A. R.: Mono. Rock. Inst., 1917, No. 7 (October 16th).
4 Bloomfield: Jour. of the A. M. A., 1923, lxxxi, 1437.
5 Locke: Jour. of the A. M. A., 1923, lxxx, 1507.
6 Huntoon, F. M.: Jour. Immunology, 1921, vi, 117, 123 and 185.
7 Felton, L. D.: Boston Med. and Surg. Jour., 1925, cxc, 819; Jour. Inf. Dis., 1925, xxxvii, 199; Bul. Johns Hopkins Hosp., 1926, xxxviii, 33.
8 Cecil, P. L., and Sutliff, W. D.: Jour. of the A. M. A., 1928, xci, 2035.
9 Banzhaf: Cited from Cecil and Sutcliff, loc. cit.
10 Chickering, H. T.: Jour. Exp. Med., 1914, xx, 599.
11 Dochez, A. R.: Jour. Exp. Med., 1912, xvi, 665.
12 Clough, P.: Bul. Johns Hopkins Hosp., 1919, xxx, 167.
13 Kline, B. S., and Winternitz, M. C.: Jour. Exp. Med., 1915, xxi, 311.
14 Armstrong, R. R., and Gaskell, J. F.: Jour. Path. and Bact., 1921, xxiv, 369.
15 Wadsworth, A. B.: Jour. Exp. Med., 1912, xvi, 54.
16 Parker, J. T.: Jour. Exp. Med., 1928, xlvii, 531.

17 Lambert, A.: Trans. Assn. Phys., 1926, xli, 224.
18 Wynn, W. H.: Brit. Med. Jour., 1927 (Sept. 17), ii, 480.
19 French, J. M.: Clin. Med. and Surg., 1928 (Feb.), xxxv, 107.
20 Sutton, D. C.: Ill. Med. Jour., 1928, liii, 280.
21 Goodner, K.: Jour. Exp. Med., 1928 (July), xlviii, No. 1, 1 and 413.
22 Barach, A. L.: Jour. Exp. Med., 1928 (July), xlviii, No. 1, 83.
23 Zinsser, H., and Tamyia, T.: Jour. Exp. Med., 1926 (Dec.), xliv, No. 6, 753.
24 Flexner, S.: Univ. of Penn. Med. Bul., 1903, July, 1.
25 Jobling, Petersen and Eggstein: Jour. Exp. Med., 1915, xxii, 568.
26 Lord and Nye: Jour. Exp. Med., xxx, 389.

THE WARREN STOCK AND SOME OF ITS SCIONS*

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WITH the death of Dr. John Warren, last June, there ceased to be for the first time in one hundred and sixty-four years a Warren to minister to the medical necessities of the people of Boston and New England. Beginning with the entrance into practice of Dr. Joseph Warren in 1764, members of this stock, for all but twelve years in direct lineage, have practiced and taught medicine in this city. Such a record of service in one profession is without parallel here, and possibly elsewhere. It is impossible, no doubt, to estimate the value of benefits conferred on mankind by benefactors in various fields, such as statesmen, teachers, philanthropists, soldiers or physicians, but it seems to me to be a conservative statement to say that the members of no other family in the history of Boston have contributed so much to the happiness, prosperity and well-being of their fellow citizens. During this period, there can scarcely have been any citizen, long a resident in Boston, who has not been touched in his own person or in his family by the beneficent influence of the Warrens. It may be permissible to illustrate this by a personal example:

In 1779 a young man, Abijah Cheever by name, began the study of medicine under Dr. John Warren. His son, Charles A. Cheever, pursued the same study under John C. Warren the son of John. Subsequently when this Cheever was stricken with a mortal disease it was J. Mason Warren, the son of John C. Warren, who operated on him at the Massachusetts General Hospital and cared for him tenderly afterward. His son, David W. Cheever, studied medicine at Harvard during the only period when no Warren was a member of the teaching staff, but he himself became a teacher of J. Collins Warren, the son of J. Mason Warren. Still another generation and J. Collins Warren became the teacher in surgery of the son of David W. Cheever and finally that son, for many years was closely associated with John Warren, the son of J. Collins Warren, in teaching anatomy and surgery at the Harvard Medical School and he now makes acknowledgement with gratitude of the help and sympathetic assistance received from him, who for the present must be called the last of the Warren physicians.

*This and the following papers by Dr. Shattuck and Dr. Bremer were read at the Boston Medical Library October 22, 1928, before the Boston Medical History Club.

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The Warren family is said to be traced to a Norman Baron, Earl Warren, who accompanied William-the-Conqueror to England, distingished himself at the battle of Hastings and was rewarded by the hand of Gundrada, the Conqueror's daughter. Be that as it may,—like most good citizens of the Massachusetts Bay Colony the Warrens managed to live down the reproach of caste, for the first authentically known progenitor in this country appears to have been one Peter who is spoken of as a mariner. Peter's grandson, Joseph, we find was an "opulent" farmer in Roxbury who married the daughter of Dr. Samuel Stevens. Here it appears enters the first medical strain into the family. The oldest son of this union, Joseph, who was born in 1741 in the old house on what is now known as Warren Street, Roxbury, apprenticed himself in medicine to Dr. James Lloyd, who had much prestige, as a result of a medical education in Europe, and began practice in 1764. I would that there were time to recall the exploits of Joseph Warren, who became a busy practitioner and a fiery patriot in the stirring pre-Revolutionary days, in the forefront of every protest against the encroachment of King George and his ministers on the liberties of the Colonists, and member of the Tea Party and of the Committee of Safety, and finally the President of the Provincial Congress. It was Warren who, in March, 1775, learning that the British threatened to hang him if he should deliver an oration on the anniversary of the Boston Massacre, sought the post of peril, entered the Old South Church by a back window, appeared in the pulpit and with British officers seated on the steps of the pulpit and in the pews delivered a fiery invective against the oppressors. On the 19th of April, having ridden hastily out to Dedham to ascertain that he was not urgently needed on account of the approaching confinement of a patient, he mounted his horse and hurried to Concord, arriving in time to direct the pursuit and harassing of the British forces as they retreated to Charlestown. Having made up his mind to exchange the scalpel for the sword, during the war which he saw to be inevitable, he was appointed Major-General and on June 17th, after attending the meeting of the Committee of Safety, he hurried to Bunker Hill, seized a musket and died with a bullet through his head, in the defense of his country.

His youngest brother, John, twelve years his

junior, having studied at the Public Latin School, where he attained but indifferent rank, entered Harvard in 1767 at the age of fourteen and maintained himself there by his own exertions. He is said to have been a good classical scholar as attested by the fact that in later life when, ignorant of foreign languages, he was able to converse with European surgeons in Latin. In college he showed great interest in anatomy and with his friends founded an anatomical society, for which animals were dissected. But there are dark insinuations that the study was not wholly confined to comparative anatomy, there being a mysterious club formed to obtain anatomical material whose actions would probably not have withstood the light of day. There being no medical school, young John apprenticed himself to his elder brother, Joseph, and while studying with him participated in his activities in the cause of liberty and became intensely interested in public problems. He volunteered in the militia in Col. Pickering's regiment of foot and was appointed surgeon. Boston seemed well supplied with doctors so he repaired to Salem and associated himself with Dr. Edward A. Holyoke, the leading physician there, and a man already well along in middle age. Doubtless the expectation was that as Dr. Holyoke's years increased and his strength declined his practice would naturally descend to his young associate; but fate decreed otherwise, for Holyoke long outlived his pupil, practicing until he was ninety-nine years of age and dying at the ripe age of one hundred. But political events soon turned Warren's mind from civil practice. He accompanied Col. Pickering's regiment to Lexington and attended the wounded after the fighting of April 19th. Having returned to Salem, on the day of Bunker Hill he heard the firing and saw the reflection of the conflagration in Charlestown, mounted his horse and rode all night, only to learn that the American troops had been routed and that his brother was missing and probably killed. A few weeks later, Washington took charge as Commander-in-Chief. The medical department of the Army was hastily organized with Benjamin Church as Director-General and Warren at the age of twenty-three was appointed senior surgeon to the Military Hospital at Cambridge. It is hard for us to imagine how this young man of twenty-three years, who knew probably not much more of medicine and surgery than a hospital orderly might in our time, could have faced without flinching the wounds and sickness of this motley army. After the evacuation of Boston by the British, he was sent to New York and became Surgeon of the General Hospital on Long Island and cared for the wounded after the disastrous battle of that name and then followed the campaign and retreats in New Jersey. Meanwhile, Church had been detected in treasonable actions and removed and was succeeded first by John Morgan of Philadelphia and later by Dr. Shippen. Warren's hope to be made a sub-director was not realized and he finally returned to Boston to accept the post as Senior Surgeon of the General Military Hospital which was established on practically the same ground as is now occupied by the Massachusetts General. During these campaigns he had met at various times the daughter of Governor Collins of Rhode Island and in 1777 they were married and established their first home in Avon Place where the eldest son, named John Collins after his maternal grandfather, was born on August 1, 1778.

Through all this time his interest in the study of anatomy had been heightened by his constant necessity for its employment and in 1780, or, according to a letter of Abijah Cheever, possibly in 1779, he began a course of anatomical demonstrations at the Military Hospital where the occasional death of soldiers without known relatives furnished anatomical material. The newly founded Boston Medical Society, of which Warren was an organizer, voted that he be asked to demonstrate a complete course of anatomical lectures in 1781, which were duly given and were attended by most of the physicians and probably all of the medical apprentices in Boston and by such gentlemen of literary or other professions as might be interested. Among other witnesses of these demonstrations was President Willard of Harvard College and the result was the conception of a medical institution to be administered by the College. Dr. Warren was asked to draw up a plan for such an institution. He corresponded with Dr. Rush and Dr. Shippen of the Medical School in Philadelphia, drew up a plan which was duly accepted by the authorities of Harvard and as a result three professorships were established in 1782, to the first of which, that of Anatomy and Surgery, Dr. Warren was elected on November 22nd. His colleagues, Dr. Benjamin Waterhouse and Dr. Aaron Dexter were elected some months later to the chairs of Theory and Practice of Physics and of Chemistry and Materia Medica respectively; so that it is a true statement that the Harvard Medical School was based on the foundation of Dr. John Warren's voluntary lectures in Anatomy and that he was the co-founder and for a time the only professor in the School. Regular exercises were begun in October of the following year.

Meanwhile his activities ranged in other directions: He helped to found the Humane Society, whose object was the preservation of human life, and one of whose off-spring was the Boston Dispensary founded in 1796. He became a member of the American Academy of Arts and Sciences in 1781, a year after its organization; and was one of the thirty-one physicians of the State of Massachusetts who in 1781 petitioned for the incorporation of the Massachusetts Medical Society, of which Dr. Holyoke of Salem was elected the first President. In 1783 he was

selected to deliver the first Fourth of July oration in Faneuil Hall.

Throughout these years both his practice and his expenses had been growing apace and in 1785 Dr. Warren moved to School Street near the corner of Washington into a large house which was scarcely adequate for his rapidly growing family, including as it did the five orphan children of his brother Joseph. Behind this house was a large garden with fruit trees where he indulged his agricultural tastes, and a stable containing a yellow coach decorated with the family coat-of-arms, a smaller coach, a phaeton, a chaise, a sulky and booby-hut for winter days. Two black men servants, slaves in fact, were bequeathed to Mrs. Warren by the will of Governor Collins,—by name, Cuff and Quaco, who were freed by the adoption of the State Constitution in 1783 but who, it may be supposed on account of the known hatred of Dr. Warren for slavery, had never been treated other than as voluntary servants. A separate portion of the house was devoted to the reception of patients and here Dr. Warren's medical apprentices compounded their pills and spread their plasters and made dressings for their Chief. The windows and roof of this "Surgery" or indeed the windows in any part of the house were usually decorated with anatomical and morbid specimens drying in the sun, which Dr. Warren used for teaching purposes and which later formed the nucleus of the Warren Museum of the Harvard Medical School.

Dr. Warren undoubtedly had the largest practice in Boston, and the necessity of delivering his lectures in Cambridge, which for a long time could be reached only by ferry or in bad weather by a drive across the Neck to Roxbury, increased the burden of his work tremendously. Moreover his interest in public affairs did not abate. Throughout the trying period after the French Revolution and during the Directory when both England and France flouted American nationality and independence, Warren was invariably called on to speak at public meetings, to write memorials to the President and to Congress and to head protests of the citizens against abuses. When enemies of a different character—yellow fever and small pox—threatened, he was called on to organize measures for defense. Vaccination was introduced by Dr. James Jackson in 1800 but its adoption was slow and hesitating. Finally, Warren was placed on a committee of medical men to examine into the question; nineteen boys were selected and were vaccinated by the new method of Jenner and then placed in an improvised hospital on Noddles Island and inoculated with small pox. Needless to say, none of them took the disease. At the same time two other boys were inoculated with small pox from the same source and both came down with typical cases. Finally, the vaccinated children were again inoculated from the lesions of the two affected ones, again without infection by the disease. Accordingly, a most favorable report was made to the authorities as to the new method which then began to be accepted by the community.

Meanwhile, the medical lectures were proceeding in Cambridge and were attracting more students, but the absence of any clinical material was a serious handicap to the new School. Dr. Warren had been appointed physician to the Alms House Hospital in 1782 and application had been made to admit students and teachers alike to the institution for the purpose of teaching, but jealousies appeared even among the profession and the project was not accomplished until later when in 1810 the seat of instruction was moved from Cambridge to Boston where, at 14 Marlborough Street in the same building occupied by the Massachusetts Medical Society, a lecture and a dissecting room were established. Not long afterward the Mason Street building, which subsequently became the home of the School was begun, but was not completed during Warren's lifetime. His eldest son, John C. Warren, as we shall see began to help his father and in 1802 was appointed Adjunct-professor.

We know but little from first-hand about Dr. Warren's methods of practice except that he must have been a bold and successful surgeon. Anybody who worshiped at the shrine of anatomy so faithfully could scarcely fail to be a good operator. In 1781 he performed the first disarticulation of the shoulder joint in America and we may assume that amputations and ligations constituted the bulk of his major surgical practice as they did that of other surgeons of the period. He found but little time to write for the medical press, and indeed, means of literary communication were but few and far between. His most notable contribution was perhaps "A View of the Mercurial Practice in Febrile Diseases" which was presented before the Massachusetts Medical Society in 1805, but not published until later.

In 1815 when only sixty-two years of age this patriotic and public spirited physician died of an acute illness, having faithfully continued to visit his patients up to within a few days of the end. His funeral was a public spectacle with attendance by the authorities and professors of Harvard College, the student body, the members of the Humane Society, the Massachusetts Medical Society, the Cincinnati, members of the American Academy of Arts and Sciences and of other organizations with which he was connected.

John Collins Warren, son of John Warren, was born in Boston, August 1, 1778, attended the Latin School where he stood first in his class, entered Harvard at the age of fifteen and graduated in 1797. Curiously enough his father opposed the study of medicine and the son appeared to have no particular taste for it. He studied French for a year and looked about for a job but opportunities in the confused days of

the end of the Eighteenth Century were few in Boston and finally the decision was made to take up his father's profession. He served for one year as his apprentice and then went to London where he found excellent opportunity in Guy's Hospital as dresser, first with Mr. William Cooper and on his death with his brilliant nephew, Astley. He soon writes to his father that he is "beginning to like to see well-performed operations". He believes that he might become a surgeon. Later he went to Edinburgh and then to Paris where he spent much time in other than medical pursuits, following his tastes in botany, paleontology, etc., under the great Cuvier. It appears that in young John a natural aptitude was present but undiscovered until after he had got well into the study of medicine. Writing from Paris to his father in 1801 he says: "I hate study and I suppose that could I lull my conscience with any good pretense I would relinquish it and become as idle as ever." This was said by a man who, as we shall see, possessed immense industry, great powers of concentration and indomitable perseverance and power of self-discipline in the pursuit of his objects. He possessed the power of throwing himself into his subject with his whole mind and strength and the tenacity of purpose to persevere. He returned to Boston in 1802 and immediately began to practice and to relieve his father of some of his professional burden.

The Boston of that time was a city of about 25,000 inhabitants. Dr. Warren dressed in a colored coat with metal buttons and a fancy waistcoat, short clothes with buckles and high boots with white tops. His hair was worn in an elaborately made queue or club which required a daily visit to a barber of at least a half hour and much pomatum and flour to get a good effect. The more elderly wore wigs and cocked hats. Both the Doctors Warren, father and son, rode on horseback on most of their visits or sometimes in a chaise, and the young doctor soon had the reputation of riding or driving spirited horses with a speed untrammeled by traffic officers. In 1803 he married a Boston lady, Miss Mason and with everything in his favor was soon making an incredible number of visits daily besides preparing the dissections for his father's medical lectures at the College. He entered with intense interest into the political questions of the day. Though starting with a rather democratic bias, he had seen enough in Paris of the French Revolution and the Directory to cure him of any desire for that kind of democracy and he vigorously supported the Federal party against the Jacobians or Anti-Federalists. Like his father, he early showed a great breadth of interests. He helped to found the Society of Natural Philosophy, the Anthology Club which later became the Athenaeum, and also a private medical society whose library later was merged with the Athenaeum. He immediately joined the Massachusetts Medical Society and began to write for it, on ligations of the femoral artery and on strangulated hernia which he was one of the first in America to operate on. With Dr. James Jackson in 1807 he was commissioned to prepare a pharmacopoeia with a modified nomenclature of drugs. He wrote a treatise on vaccination.

A word should be said about his relations with James Jackson. These two young men studied together in Europe, and, it is said, agreed between themselves that neither would ever do anything to injure or to bar the progress of the other. Certainly, whether on account of that agreement or not, these men always worked in the happiest accord in the promotion of every worthy medical object. Since we think of one as the surgeon and the other as a physician this seems most natural but we must remember that nobody in those days practised exclusively surgery. Indeed one of John C. Warren's early acts after starting to practice was to propose to his colleagues that he would relinquish medicine if all the surgery of the City were referred to him, but no agreement could be secured to such a modest proposal and Dr. Warren practised medicine and midwifery almost to the end of his life. He was of the greatest aid to his father both in his practice and in his teaching. He recounts the fact that on one occasion he and trusted companions exhumed a recently buried corpse of a pauper from the North Burying Ground and with great risk brought it by sun rise to the College in Cambridge. The elder Warren was much disturbed by this act but as the son naïvely adds: "when he saw what a fine subject it was he was very much pleased". In 1808 he became Adjunct-Professor of Anatomy and Surgery and succeeded to the full-professorship when his father died in 1815. In 1805 he removed to 2 Park Street where the rest of his life was spent and where his young family grew up. In 1810 the Medical School was moved to Boston and established over Mr. White's apothecary store in Marlborough Street until the new building in Mason Street was completed in 1815.

Clinical facilities were still conspicuous by their absence, a grudging permission having been obtained for the utilization of some of the material in the old Alms House Hospital. A letter was circulated, signed by John C. Warren and James Jackson urging the establishment of a hospital. Subscriptions were solicited and a grant obtained from the Legislature of $100,000 and on July 4th, 1818 the corner-stone of the Massachusetts General Hospital was laid. New blood was now infused into the School by the apointment of James Jackson as Professor of Theory and Practice and later of Dr. Gorham, Dr. Jacob Bigelow and Dr. Walter Channing. The hospital was opened in 1820 and it was truthfully said: "That the origin, the arrangements and in a great degree the control of this institution in its early years belonged to Drs. Warren and Jackson." They also founded in

1812 the *New England Medical Journal*, a quarterly journal which they carried on until in 1828 the *Medical Intelligencer*, which had been in existence since 1823, was purchased by the *New England Journal* and the two were united under the joint editorship of Warren, Channing and Ware as the *Boston Medical and Surgical Journal*. The first article in the first number was by Dr. Warren, on cases of neuralgia and for the next few years much of the material came from his pen. Later, as the journal was not a financial success it was relinquished to the publishers and the editorship was taken over by Dr. J. V. C. Smith.

Dr. Warren was brought up as a Calvinistic Puritan in his father's household where family prayers were read daily by the elder Warren and also a Bible lesson on Sunday with strict attendance at Church twice on the Lord's Day. In Europe, however, the younger Warren, under the agnostic influence fostered by the French Revolution, lost interest in religion but later in life he again turned to it, studied the Greek Testament, commentaries and religious philosophy and finally decided to embrace the Trinitarian doctrine and eventually joined the newly established St. Paul's Episcopal Church where he became senior warden, superintendent of the Sunday School, of the missionary society and director of the church music. Among the touching things left by him are a series of prayers which he had composed and written out for use on appropriate occasions.

In 1823 Dr. Warren purchased three acres of land on Bunker Hill and agitated the preservation of what was left of the redoubts and the construction of a monument. Lafayette was in the country and Warren took him to the battle ground, roused his enthusiasm and induced him to promise to come the following year to lay the corner-stone. Thus public interest was aroused, Warren became chairman of the building committee, the corner-stone was duly laid by Lafayette and an oration pronounced by Daniel Webster. The work proceeded slowly, however. When it was started there was but little more than $30,000 in hand and during the progress of the work Dr. Warren was forced to make a personal loan of a large sum. The monument was gloriously completed, however, in 1843 and dedicated by the notable oration of Webster.

One of Dr. Warren's great interests became the cause of temperance and about 1827 he began to write and speak actively in its support. Later he ceased to provide wine at dinners and wrote an article maintaining that there was but little necessity for the use of wine or alcohol in medical practice. His youth had been passed in a period and among company when drinking was the order of the day. He finally became a total abstainer and wrote in his journal: "On the whole, I can say with confidence, that if I had never tasted wine, my life would have been more healthy and longer and more comfortable."

On the arising of any public question or emergency, Dr. Warren, like his father, was called on to memorialize the Government, to address public meetings or to head a committee. He was appointed the chairman of a board of consulting physicians for the City of Boston to defend it against an anticipated invasion of cholera from Europe. He gave lectures on physical education and was instrumental in founding a gymnasium. He continued to pursue a huge practice and to teach with enthusiasm, to contribute to the medical journals, to enlarge the collection of morbid anatomy begun by his father and to indulge in his more leisure moments in his taste for the natural sciences and paleontology. In 1837, having published his work on tumors and having seen his son, J. Mason Warren established as his colleague, he made a trip to Europe and visited the chief medical centers, renewed old friendships and made new ones, and everywhere studied the work being done in the medical and in the natural sciences and secured specimens for his collection. On his return a complimentary dinner by the physicians of Boston was given to him and to James Jackson.

On October 16, 1846 occurs this entry in his journal: "In the morning I went to the Medical College to make some experiments on the renovation of decayed bones with glue. I did an interesting operation this morning while the patient was under the influence of Dr. Morton's preparation to prevent pain. The substance employed was sulphuric ether". This laconic entry is the only reference made to the most important and dramatic event in the history of medicine in America. In this same year the project to move the Medical School to North Grove Street was broached and, of course, it was Dr. Warren who drew up the plans and solicited subscriptions. At about this same time he founded the Thursday Evening Club, originally called the Warren Club, for social and scientific conversation, which has met weekly during the winter months ever since that time. In 1847 having taught in the Medical School for forty years he resigned his professorship. From now on he was able to devote more leisure to the pursuit of natural science which had been his avocation for years. He became President of the Society of Natural History. He enlarged and perfected the collection of pathological material begun by his father and presented it with an endowment to the College to form the basis of the Museum. He became interested in Gall and Spurzheim's Phrenology which he had investigated on his first visit to Europe and he secured the collection of the French Society for the Harvard Medical School. In 1849 he became third President of the American Medical Association, an office which had, as a matter of fact, been previously offered to him. He resigned from the Massachusetts General Hospital in 1853 and this gave him still more

leisure to produce his monograph on the mastodon and to do work in paleontology of the first order. The mastodon itself he had secured by purchase and with other collections had housed in a suitable museum in Chestnut Street. Gradually, this amazing life drew toward its close, but with no cessation of its activities until shortly before the end, which occurred May 4, 1856 at the age of seventy-eight.

Dr. Warren started life with every advantage of inheritance and tradition but as Oliver Wendell Holmes most truly said: "Whatever place he acquired or maintained no man can say that he did not earn it and keep it by his own fair labor".

The medical scion in the third generation was the fourth child of J. Collins Warren,—Jonathan Mason, who was born February 5, 1811 in the old house at No. 2 Park Street. He was a physically delicate and mentally precocious boy, prepared at the Public Latin School for admission to Harvard at the age of fourteen but denied this privilege on account of ill-health. It is darkly hinted by his biographer that the nauseous polypharmacy and rigidly restricted diet prescribed by his stern father were responsible in part for his dyspepsia and physical exhaustion, which found little chance for relief in a regimen gradually reduced to plain boiled rice with a pinch of salt and a little sugar three times daily! But a sea voyage brought emancipation and better health and he returned eager to engage in the traditional profession of his family, in which respect, as in others he differed radically from his father. He graduated in 1832 from the Harvard Medical School, at the age of twenty-one. Threats of more ill-health and the advantage of foreign study sent him to Europe where after paying his respects to Sir Astley Cooper and others of his father's old friends he settled in Paris in the Latin Quarter, and for three years was one of that cosmopolitan student population, gathered from every corner of the earth and engaged in the pursuit of every variety of knowledge. His intimates, among others, among his fellow Americans, were Henry Ingersoll Bowditch, James Jackson, Jr. and Oliver Wendell Holmes.

The Medical Faculty of Paris of that time was truly a constellation of stars of the first magnitude. Baron Larrey of the Napoleonic Wars still presided over Les Invalides; Dupuytren, Velpeau, Lisfranc and Roux hurled defiance and invective at each other in matters surgical; Civiale was demonstrating his lithotrity and Louis was investigating typhoid fever and phthisis and overthrowing the doctrines of Broussais by the marshalling of irrefutable facts and figures. The great Dieffenbach came to Paris to demonstrate plastic surgery. Young Warren absorbed the teachings of these masters and kept up a voluminous correspondence with his father which affords us a graphic picture of the Paris, both medical, political and social of that day. Holmes wrote of him: "In Paris, in London, he never lost sight of his great object;—to qualify himself for that conspicuous place as a surgeon which was marked for him by the name he bore, * * * a laborious, lovable man". Also the refinements of life in Paris appealed to him,—he became somewhat of an exquisite in his dress and manners, and pursued opportunities for cultivation by frequenting literary and artistic circles, where he was known for his good conversation and his wit.

In June 1835 he returned to Boston and began a professional career of 32 years, the last twenty of which were to be spent in the service of the Massachusetts General Hospital. His position as son of a distinguished and autocratic father had many advantages, no doubt, but also some drawbacks in the way of the suspicion, jealousy and animosity with which the son of such a father was sure to be regarded, but the young man's unfailing courtesy, warm-heartedness and generosity soon won him his own place among his patients and fellow physicians.

A large practice was delegated to him by his father and increased by his own industry. He soon performed the first operation in America for the restoration of the human nose, and devised important modifications in the operation for cleft palate. In 1846 he was appointed one of the six visiting surgeons to the Massachusetts General Hospital and was present at the first operation under ether anaesthesia, performed by his father. He eagerly embraced the new method and a few days later was the first to use ether in private practice, and a month later was the first to administer it to a child.

The succeeding twenty years were filled with an exacting hospital and private practice faithfully pursued, with offices in medical, patriotic and social organizations ably administered, at the cost of periods of failing health and depression of spirits. He made frequent communications to medical journals and societies, and wrote out in his own hand careful records of his surgical cases, from which he culled the material for the six hundred pages of "Surgical Observations, with Cases and Operations" which, published shortly before his death, formed an epitome of his professional work.

In May 1867, having been long a sufferer from indigestion, he first learned that he had a progressive malignant malady. His work was not interrupted. A month later he wrote in his journal: "During the day I had patients from every quarter and prescribed for more at the house than I remember ever to have done before". A month later: "During the last four months I have performed ninety operations at the Hospital and about thirty in private practice". Six weeks later he was dead.

In him the stern and uncompromising ritual of personal conduct of the Puritan forebears was

mellowed and softened, but with no relaxation of his sense of obligation to serve. Perhaps he took his maxim from the nation he loved almost as dearly as his own—*noblesse oblige*. Almost an epicurean in his taste for the amenities of life, he yet had great pride of race and of his family medical tradition, and was patriotic and public-spirited. A contemporary wrote of him: "He undertook no duty that he did not perform with conscientious exactness; he was an accomplished surgeon and devised new and valuable operative methods; he had a gentle and high-bred courtesy of manner and purity of character; he never excited envy or jealousy but was beloved alike by patients and fellow-physicians".

Though this brief sketch was to concern itself only with those of the Warren name in direct lineage, it would be too serious an omission not to mention another sturdy medical scion, a son of a daughter of John C. Warren, Thomas Dwight by name, born in 1843, in whom a taste for the medical sciences was thoroughly developed. He graduated from the Harvard Medical School in 1867, studied abroad, and returned to start in practice. The study of anatomy had especially interested him, and while waiting for practice he plunged into anatomical research and teaching, which soon completely absorbed him. In 1883 he succeeded Oliver Wendell Holmes as Parkman Professor of Anatomy in the Harvard Medical School and for the succeeding twenty-eight years, without interruption, introduced the students to the study of medicine through the medium of gross anatomy. He enriched the collections of the Warren Museum, introduced and perfected the study of frozen sections, made himself an authority in comparative osteology, placed his knowledge at the disposal of medico-legal courts of law, served as Trustee of the Boston Public Library, the while endearing himself to class after class of students. To him, as to his uncle, came the knowledge of a progressive fatal illness, but the respite was longer, and for two more years he carried on his work as usual, supporting a nearly disabling infirmity. His life was one of unselfish serviceableness, worthy of the stock from which he sprang.

J. C. WARREN THE MAN*

BY F. C. SHATTUCK, M.D.†

ONE can get the impression that John and John Collins Warren, great grandfather and grandfather of our subject were dominant men, more generally respected, and possibly more feared, than loved. His Mason grandmother was a very decided person, not afraid to express her opinion in plain English when she chose so to do. Of the traditions as to her sharpness of tongue one comes to mind. She is said to have remarked,—"I don't like to see the doctor go to the funeral of his patients, it is like a tailor bringing home his goods."

Whence came the softening influence which gave Warren his marked consideration of others, his social charm and some of his generosity in thought and act is not clear. His mother was a Crowninshield, of a family the members of which, according to traditions, were not all always too smooth. Perhaps it was his Collins great-grandmother, the daughter of Governor Collins of Rhode Island, a State of less uncompromising character than Massachusetts. Human heredity is ticklish ground. Man does his own mating, has some power over his own environment and is long lived enough to make it difficult, to say the least, to trace far back individual ancestral traits. Time and changed conditions have mellowed the Puritan.

Warren was Boston born and a Bostonian he remained; of the best type, not deeply stamped with the alleged provincialism which is the cause of gibes to some non-Bostonians, amusing them and not harming their target.

His schooling and upbringing were what one might reasonably look for in a boy of his class with a large family connection. His college course at Harvard was marked rather by social than scholastic prominence. After taking his A.B. in 1863 he entered the Harvard Medical School and, after completing one year there, took a step unusual at the time. He spent his next year at Philadelphia, graduating in medicine at the Jefferson School in 1865. He there enlarged his horizon and made valuable lasting contacts. From May 1865 to '66 he was surgical house pupil, as internes were then termed, at the Massachusetts General Hospital, taking his Harvard M.D. in '66. An exception must have been made in his favor for it was not customary to appoint degree holders as internes. A house pupil might have fulfilled all the requirements for his M.D., and might even join the Massachusetts Medical Society. But he must not actually take his degree before completing his hospital service. Perhaps it was feared that humility and docility might drift into arrogance through parchment Latinity. It was not until after my time that this rule was changed.

Three years on the Continent and in Great Britain followed, fully availed of professionally and generally,—and so home for his life's work which was to prove so fruitful.

*This and the papers by Dr. Cheever and Dr. Bremer were read at the Boston Medical Library, October 22, 1928, before the Boston Medical History Club.

†For record and address of author see "This Week's Issue," page 900.

Intelligent, well-equipped, eager, unselfish, deservedly popular throughout life, he went from strength to strength. Early awakened to the defects of medical education in this country, defects which almost necessitated prolonged study abroad, he became more and more dominated by the desire to lessen and remove them. It is not for me here to trace and recount the strides which led to the brilliant success achieved by him and his associates.

Actively engaged, as he was, in hospital and private work and in teaching, the advancement of medicine was ever awake in his mind. It became really the mainspring of his life, keeping him young in mind, and fully occupied after retirement from more active work. He was always, to quote his own expression, "Johnny on the job". He refused a virtual offer of the Presidency of the Massachusetts Medical Society lest his energies be dissipated. He looked at medicine in the large. In building up the Harvard Medical School I am sure he realized how advance in any one place sends its ripple afar. His life happened to coincide with the revolution in medicine and the growing appeal to the public imagination which the revolution inspired.

Man seldom makes his opportunity. He senses and seizes it, as did Warren. This one can say without in the least belittling his vision and achievement.

His largeness of mind calls for further mention. He was no specialist. Lesser men concentrate themselves on this or that detail, especially if they consider it the child of their brain, taking little active interest in other details or perhaps in the matter as a whole.

Warren's ear was ever open to any whisper of progress. He considered carefully and judged wisely. Wisely, largely because unselfishly. Sympathy, helpful suggestion and active coöperation were at the service of others without stint, as whole-heartedly as modestly.

Recognition he received, but he never strove for it directly. He was human enough to be pleased at it; but it was service at which he aimed.

He was no mere man of medicine. He was long a Trustee of the Massachusetts Humane Society, its President, and won its medal by saving a boy from drowning. President, also, of the Thursday Evening Club, founded by his grandfather Warren. In the Massachusetts Historical Society he was actively interested, making it the depositary of his collected family papers. One of its meetings in the spring of '27 was, I think, the last meeting of the kind which he attended.

He was fond of the saddle and the golf course, and continued to skate later in life than most men, always provided with a life line.

He was such a gentleman, so obviously disinterested, so persuasive with all that he can be classed with Bishop Lawrence as a Prince of Beggars. As physician, friend, citizen he stood high. As a promoter of medical education he was pre-ëminent. His name is indelibly written literally in letters of gold in the Hall of Fame of his Alma Mater, and his example will long serve as an inspiration.

He was one of the happiest of men, devoid of pettiness or jealousy. He labored for others, not for himself, and he was blessed by seeing the result of his labors.

JOHN WARREN 1874-1928*

BY J. L. BREMER, M.D.†

JOHN WARREN, the second of that name, was born on September 6, 1874, the elder son of Dr. John Collins Warren. His brother, a year younger, was christened Joseph, so that in this generation the two brothers held the same simple names as the brothers of Revolutionary fame. Their mother was Amy Shaw, one of the most beautiful women of her time in Boston, and of a distinguished ancestry. Thus on both sides he was connected with many of the best families of the Boston of that time, and a proper pride of race formed a solid background for his character throughout life.

From his mother John inherited his fair complexion and his great size. As a boy he outgrew his strength, and at School and even at College he was unable to enter into athletics with any degree of pleasure or skill. His height made him a conspicuous figure, and induced a certain amount of shyness and reserve which remained with him in his older years. Underneath this reserve and the dignified manner with which he cloaked his shyness was a truly sweet and lovable nature which few, perhaps, were given the opportunity to realize fully.

He prepared for College at Noble's School, and entered Harvard with the Class of '96. He was a good student, though not brilliant. He became a member of the most exclusive College Clubs, where he was a great favorite. In due course he graduated, and the next year entered the Harvard Medical School, then on Boylston Street. With his long line of medical progenitors—Dr. John Warren, the brother of Dr. Joseph Warren, the General of Bunker Hill; the first Dr. John Collins Warren; Dr. Jonathan Mason Warren; the late Dr. John Collins Warren, who died only last fall—with such ancestors,

*This and the previous papers by Dr. Cheever and Dr. Shattuck were read at the Boston Medical Library, October 22, 1928, before the Boston Medical History Club.

†For record and address of author see "This Week's Issue," page 900.

it was almost inevitable that he, too, should follow the medical profession in one of its many branches. During his course at the Medical School, he equally naturally studied at the Massachusetts General Hospital, which one of his family had been instrumental in founding shortly after the Revolution, and where his father was then Chief of the Surgical Staff. The practice of surgery held no attraction for him, however, and the next year, after his graduation, found him enrolled as an assistant in the Department of Anatomy of his old school, and thus he entered into his career as a teacher.

In 1900 the Department of Anatomy was dominated by Thomas Dwight, a kinsman of the Warrens, then Parkman Professor of Anatomy, and familiar to all older graduates of the School—a forceful and very lovable example of the older type of Professor, by whom the didactic lecture was considered paramount in teaching. It may be from intimate association with Dr. Dwight or it may be by inheritance from his great-great grandfather, the first Professor of Anatomy at Harvard, that John Warren acquired the art of the careful preparation and clear and forceful delivery of anatomical lectures, of which he became a master. With this, he also attained a depth of knowledge of human anatomy and a skill in displaying it by dissection which all his colleagues in later years were ever ready to acknowledge, and which his successive classes of students were quick to recognize.

Appointed Demonstrator of Anatomy in 1901, and Assistant Professor in 1908, he devoted himself enthusiastically to teaching and to the improvement of the methods of teaching then in use. After Dr. Dwight's death he raised a memorial fund—the Dwight Fund—to be used for the acquisition of specimens or other material which might be of value to the student. When he took charge of the anatomical teaching as Associate Professor in 1915, he began the formation of a teaching anatomical museum, which was to be close to the dissecting rooms and immediately available to the students at all times. This he named the Dwight Room; a commemorative tablet ordered by him is soon to be placed on the walls. It might equally well be called now the Warren Room, to indicate the many years of thoughtful labor which he has devoted to the memory of his beloved Professor and to the aid of coming students. The original design was to display a series of frozen sections of the body, a method of study introduced into America by Dr. Dwight, so arranged that they might readily be examined and studied; but this idea was soon expanded to include many illustrative dissections, each accompanied by a photograph, carefully labeled. Always a skilled dissector, he himself supplied most of the specimens, and spent much thought and care on their arrangement and availability for study. Recently some valuable historical matter has been added, as an incentive to the students to become interested in this phase of the subject. The pervading idea of John's work was always that of help for the student in mastering the science which he recognized as difficult, but which seemed to him so important. His was always the point of view of a teacher.

With this trend of thought, John Warren was called upon to meet a distinct change of ideas among the anatomists of his time. The older lecture courses were being superseded by less rigid curricula, more stress was being laid on the individual initiative of the student, newer revolutionary methods were being introduced in anatomical study and investigation. In his first few years in the Anatomical Department John also entered the field of research, largely under the influence of Professor C. S. Minot, of the then separate Department of Histology and Embryology. Two of his papers, published in the *American Journal of Anatomy,* show careful work and painstaking ability in embryological investigation, but they are not brilliant, and it soon became evident that his tastes did not run in this direction. He was at first mildly and genially skeptical of the newer modern anatomy. Living as he did in a surgical atmosphere, trained to believe that a sound and detailed knowledge of human anatomy was the essential foundation of every practitioner, he used to grumble a little at the thought of teaching anatomy by experimental methods—"growing eyes on tadpoles' tails," as he expressed it. One is reminded of Professor Dwight's saying that, however interesting it might be to know of the homology, it scarcely improved the first year students' knowledge of the saccules of the human larynx to enter into a detailed description of the roaring sacs of apes. One must have heard the roar in the Professor's voice as he said this, and seen the twinkle in his eyes above the beard to appreciate fully his attitude on the subject. With John Warren, it was not that he did not appreciate the value and interest of experimental research, but as a conservative he feared that the—to him—all important facts of human anatomy might be neglected, that the fundamental medical science on which new ideas and problems should be firmly based, might be overlooked by students just entering their medical studies. He was at first an enthusiastic attendant at the meetings of Anatomical Societies, both in this country at the yearly meetings of the American Association and abroad at the international meetings—in Prague and Brussels in the early years of this century, in London in 1913. After the War, he felt somewhat out of touch with the trend of modern investigation, and this, together with a habit he then formed of taking his vacation in the spring, between his duties of teaching and the elaborate preparations for Commencement, as University Marshal—a period which usually included the date of the American Meetings—led

to repeated absences on his part. For those of us who have attended these meetings, the frequent and earnest inquiries of his colleagues of other Universities testify to the high regard in which he was held by them. In all his contacts with anatomists, here and abroad, his striking personality and courtly manners made a deep impression, and his thorough knowledge of the subject he taught so well was everywhere recognized.

Within the last few years he decided to utilize the abundant material of the Dwight Room in the preparation of an Atlas of Anatomy, always with the idea of helping the students and of extending the circle of those who could come under his influence. Beautiful drawings of his dissections have been made, on which he expended years of patient care. He was not destined to see the publication of this book, but by his will left the material to the Department of Anatomy, which will surely bring it to completion. This and the Dwight Room should be John Warren's lasting contributions to Anatomy.

John Warren's administrative ability, a strong trait in the family, was soon recognized by the Medical School. In 1903 he became the youngest member of the Faculty in the days when from its small size it was referred to as a "dinner club." Since then he has been called upon to serve on numerous Faculty Committees. In 1911, President Lowell appointed him University Marshal, in which position he was probably best known to the greater number of Harvard alumni. This brought him into intimate relations with the authorities in Cambridge, and with various types of eminent men, and it gave him an opportunity to utilize his power of organization and the regulation of detail. Many graduates will remember the dignity which his presence lent to these yearly gatherings, even though they may not realize the thought and infinite care necessary in their preparation.

During the War this same faculty for administration secured for him posts of considerable importance. Intensely patriotic, as became one of his family, he attended the first Plattsburg Training Camp, and at once enrolled as a Medical Reserve Officer. He was later in active service in many camps, holding such positions as Sanitary Officer and Adjutant, rising to the rank of Major. He never reached Europe. He was kept busy long after the termination of hostilities, and after his discharge he retained his interest in military matters. It is in large part due to his influence that the medical unit of the Reserve Officers' Training Corps now exists at Harvard.

It was also entirely natural that John Warren's interests should include historical matters. His first published paper, written before his graduation from the Medical School, was entitled "A Sketch of the Life of John Warren, M.D., the First Professor of Anatomy in the Medical School." It was printed by the Harvard Medical Alumni Association, and contains excerpts from private family letters and journals, delightfully connected by other interesting matter. Later he became interested in the early history of the School, and was able to secure prints of the different buildings where its activities had been carried on, some of the cards of admission to the early lectures, signed by the Professor in charge, as was then the custom, and other matters relating to the early days. Many hours in the Athenaeum and other libraries, and in old book shops were spent in the search. It was his intention at one time to publish the results in book form, but some slight incompleteness in the record made him abandon the project. Within the last few years he became interested more widely in the history of Anatomy in general, and, with a basis of the old and valuable volumes on this subject found among the medical books of his ancestors, began collecting old anatomical works. It seemed assured that he, like Osler and many others, would experience the lasting joy and interest of the collector, for which he was so well equipped, but it was not to be. This pursuit provided a purpose for several visits to England and the Continent, the last ending only a month or so before his death. The acquisition of some of the rare volumes which he succeeded in buying gave him the keenest pleasure. Here again he thought of the student, and with the hope of broadening the scope of their interest in Anatomy, he arranged for the reproduction of some of the old illustrations to be hung in the Dwight Room.

This considerable collection of old works on Anatomy, closed so suddenly by his death, together with the entire medical library of the Warren family, handed down from father to son, is now left to the Library of the Harvard Medical School, and should serve as a valuable and interesting memorial to five generations.

During the last decade of his life John Warren was increasingly confined by the waning health of his parents. His mother became practically an invalid, and his loving care of her up to the time of her death, a few years ago, made heavy inroads on his time. After the loss of his wife, the senior Dr. Warren failed rapidly, and again it devolved upon the unmarried son, living at home, to regulate the household and alleviate by his almost constant attendance the suffering, physical and mental, of the famous surgeon who was becoming blind. Always great friends with his son, often taking him as a companion to surgical meetings in the old days, the father now leaned more and more on the son. It became John's habit to take lunch, as well as to dine, every day with his father in their old fashioned dining room on Beacon Hill, surrounded by the portraits of other Warrens of earlier generation, the side-

board bright with old family silver. It formed a picture which I feel privileged to have seen, and showed the true sweetness of both natures.

John Warren's other interests were few, his tastes simple. Travel, preferably in slow old fashioned steamers and avoiding the more modern hotels; walking, long country walks, or, as many of us remember, daily walks from his house to the School, long coat-tails flapping, cane swinging; or in the country, work in the woods with axe or saw—these were his avocations. Games he did not care for though he played tennis well in the early days. Frequently alone in his travels, yet always delightfully ready for a congenial companion, whether a smoking room acquaintance for an hour, or an old friend for a month, he seemed always self-sufficient, to contain within himself the means for his own enjoyment, which he was ready to share or not as occasion offered. He had perhaps few intimates but many friends, and he will be missed by both as a delightful companion, a true and scholarly gentleman, a masterly teacher.

FIFTY CASES OF RENAL INFECTION*

BY GEORGE GILBERT SMITH, M.D., F.A.C.S.†

MANY of the problems in urology are already solved, or at least their solution is foreshadowed. Infections of the kidney do not fall in either of these classes; very little progress in their treatment has been made since pelvic lavage was first employed as a direct therapeutic measure.

With a view to estimating the value of, and indications for, various methods of treatment, a study of more than one hundred cases occurring in my own practice has been undertaken. From this number fifty cases which had been sufficiently worked up to be of some value were selected; these form the basis of this paper. It is well understood that in a general medical practice many cases of acute pyelitis occur which clear up under expectant treatment and never come into the hands of the urologist. For this reason the ratio of acute to chronic cases in this series is probably too low to represent the actual facts. Cases of renal infection occurring as secondary complications in other diseases, such as cancer of the bladder, prostatism and renal stone, were not included. The cases in this series were those diagnosed first as pyelitis or pyelonephritis; in many of them an underlying pathological condition from which the renal infection resulted was later demonstrated, but in the course of a routine medical examination such cases could only be classified as "renal infection."

In going over the histories an attempt was made to find out what possible etiologic factors might have been concerned. Infected teeth and tonsils and disturbances of the gastrointestinal tract have been considered to be possible underlying causes. In this series, no evidence was adduced that the tonsils were a causative factor; all cases had not been examined by laryngologists, however, and it is not unlikely that some instances of tonsillar infection were overlooked. I believe that with recurrent attacks of pyelitis or in chronic cases such an examination should be made. Five patients gave a definite history of the removal of infected teeth preceding the renal infection or following shortly after, the latter proving that the apical infection had existed when the renal infection took place.

The intestinal tract appeared to be an even more likely factor, for out of the fifty patients nine had some disturbance of the bowel. One patient had a duodenal ulcer; eight gave a history of colitis. In several of these, the attacks of colitis preceded or were coincident with recrudescences of the renal infection. This finding agrees with that of Kretschmer[1], who in two hundred cases of pyelitis found gastrointestinal disturbances in thirty per cent.

In this series of fifty cases fifteen occurred in males, four being acute and eleven chronic. It is worthy of note that two-thirds of these fifteen cases showed infection of the genitalia, usually a prostatitis and vesiculitis, occasionally epididymitis or orchitis.

Thirty-five cases, seventeen acute, eighteen chronic, were in females. Five of the acute and one of the chronic cases were connected with pregnancy or the puerperium; two others were in girls of nine and eleven years of age.

No arbitrary time limit was set to make the distinction between the acute and the chronic types; a previously healthy individual who showed the signs of renal infection, in whom the progress of the disease towards a cure was relatively steady, was classified as having "acute" pyelitis, whether the time required for a cure was two weeks or two months. The chronic cases were those in which the infection had been present for a much longer period, or in which it persisted in spite of treatment. Most of them, of course, had had acute exacerbations of the infection. The true difference between the two types consisted in the fact that the acute cases were to a large degree self-limited, whereas the chronic cases required more drastic treatment to bring about a cure, if indeed a cure could be effected at all.

*Read at a meeting of the Fall River Medical Society, Dec. 12, 1928.

†For record and address of author see "This Week's Issue," page 960.

[1] Kretschmer, H. L. Treatment of Pyelitis. Surgery, Gynecology and Obstetrics 33:632 (December) 1921.

The typical case of acute pyelitis in women is likely to be ushered in by the symptoms of cystitis. There is frequent burning urination and the urine may be bloody for a day or two. Within two or three days pain in the kidney region is noted and the temperature becomes elevated. If the patient is kept in bed, the pain and fever subside in from two to five days, often to be followed by the occurrence of pain in the other kidney and a second brief period of fever. In some cases, pain in the kidney and fever do not develop and the infection clears up without any evidence to show that the infection has involved the kidney pelvis. It is maintained by some writers that these infections are always of renal origin, but this point cannot be decided unless ureteral catheterizations are done in a number of such cases. During the period of acute cystitis, one hesitates to do this, both because of the extreme sensitiveness of the blad-

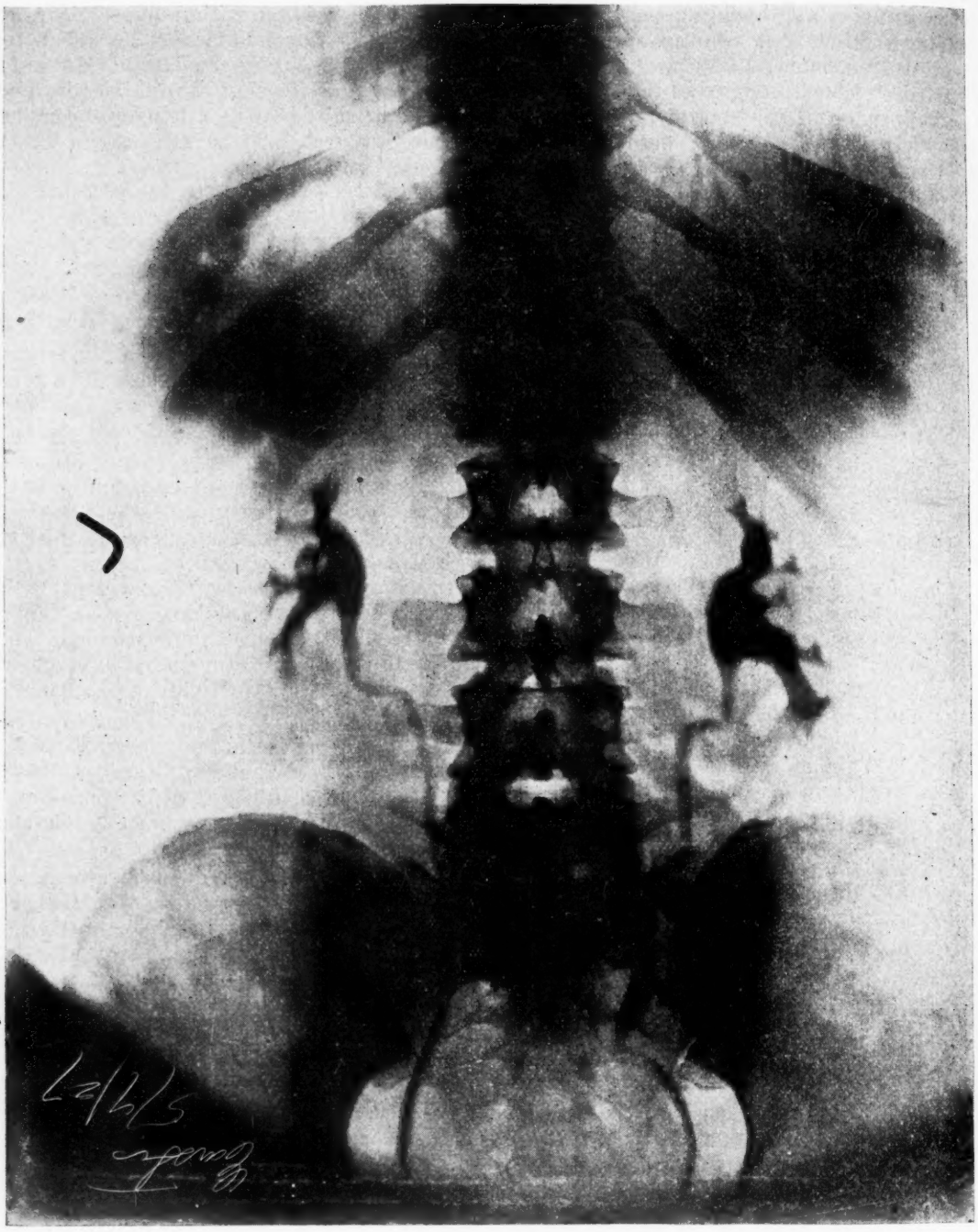

FIGURE 1.

A case of chronic bilateral bacilluria, the infecting organisms being the Bacillus mucosus capsulatus and the colon bacillus. Although the urine can be cleared up by the use of Methenamine the infection always recurs. There is a bilateral nephroptosis, although the patient, a man of fifty, is well built and apparently in excellent health. There is an accompanying prostatitis.

der and because of the danger of infecting a healthy kidney. I have seen several cases in which the infection cleared up within a week, without any signs suggestive of renal infection.

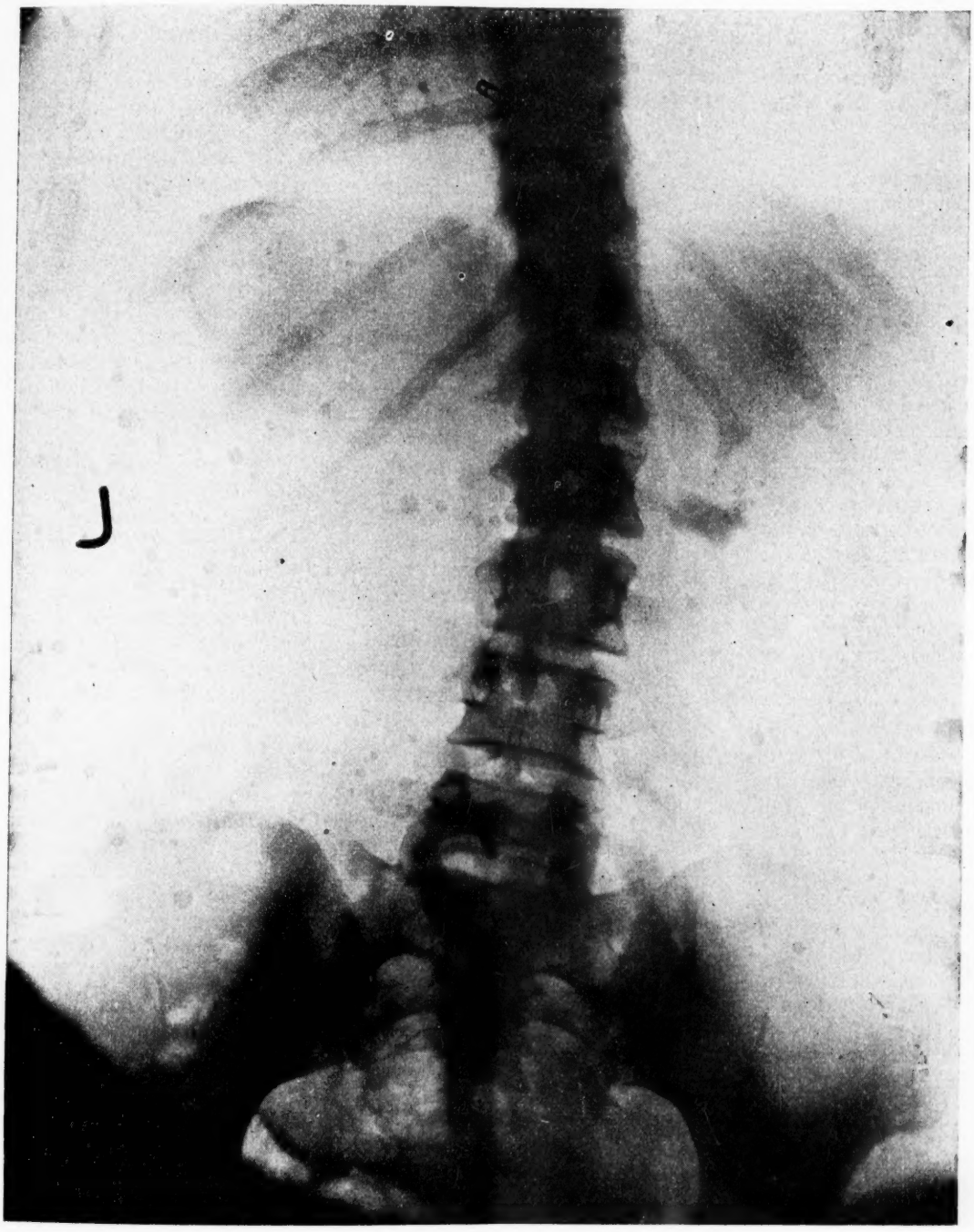

FIGURE 2.

Recurrent pyelitis in a woman of 50. The right kidney pelvis shows very slight dilatation, and at the uretero-pelvic junction a suggestion of constriction as by an aberrant vessel. The patient had a marked secondary anemia due to menorrhagia. After the bleeding was stopped by radium treatment the patient's general condition improved and the renal infection cleared up.

It is not certain whether in such cases the infection originates in the kidney or in the bladder, nor does it appear particularly important, except on academic grounds, to have this question settled. The treatment in either event would be the same—namely, rest in bed, free elimination, light diet, forced fluids and alkalinization of the urine. Heat over the affected kidney gives comfort, as do hot enemas and colonic irrigations. The bladder infection at this stage can be materially alleviated by daily lavage with a dilute solution of mercurochrome (1-1000).

In the uncomplicated case, such an infection should clear up in from ten days to two weeks. The persistence of fever for more than

five days for each kidney infected strongly suggests the likelihood that obstruction to drainage exists, and is an indication for catheterization of the ureters and pelvic lavage. Enlargement of the kidney is evidence that the process is a pyelonephritis, not a simple pyelitis.

Of the twenty-three cases of acute pyelitis, in nine the infection was bilateral, in seven unilateral. In five cases, the ureters were not catheterized; in two others the proof of infection at the time of examination was too slight to be accepted.

When the acute symptoms have subsided, it is desirable to follow the condition of the urine by means of catheter specimens taken from the bladder every third day. After the pus has disappeared, the urine should be cultured, as a bacilluria may exist in a perfectly clear urine.

For internal medication methylene blue, two grains after each meal, may be used to good effect even when the urine is alkaline. After the subsidence of bladder irritability, the urine may be allowed to resume its normal acidity, or may be acidified with acid sodium phosphate, and methenamin administered in doses of thirty or forty-five grains a day. My experience with caprokol has not impressed me with its value, nor does the concentration of the urine necessary for its effective action seem desirable during the acute stage of the infection. It may be given together with methylene blue, however.

Twenty-seven cases in this series were classified as "chronic". Of these, four showed an infection of but one kidney; twenty-two had both kidneys infected. In one case the evidence of bilateral infection at the time cystoscopy was done was too slight to be counted. The high proportion of bilateral infections is noteworthy.

One patient, a boy of seven who had been operated upon eighteen hours after birth for a spina bifida, had an infected residual urine of five ounces and dilated ureters; the resulting lesions were studied by means of a cystogram. Three cases cleaned up quickly under pelvic lavage, so were not pyelographed.

In twenty-three cases pyelograms were made. These cases were divided into three groups according to the pyelographic findings. Group one consisted of those with perfectly normal pyelograms. There were eight in this group. Group two (nine cases) showed a slight deviation from the normal, such as slight extrarenal dilatation, slight or moderate blunting of the calyces, or a questionable kink in the ureter. (Fig. 1.) Into group three (six cases) were put those cases which showed a definite abnormality; most of them required surgical intervention. The abnormalities found in this group were:

(1) Slight extrarenal dilatation on the right, double ureter and pelvis on the left.
(2) Megaloureter, left.
(3) 8 ounce hydronephrosis, infected, right; destroyed kidney, left.
(4) Obstruction at uretero-pelvic junction, left; slight dilatation, bilateral.
(5) Moderate hydronephrosis, ulcerated calyx, right; hematuria.
(6) Abscess of calyx.

The treatment of the chronic cases consisted, first of all, of hygienic measures to improve the general condition. Many of these patients were in excellent health, apparently not at all affected by the renal infection. Two cases showed marked anemia; one of these proved to be a pernicious anemia, complicated by a cholecystitis. The other was a woman of fifty, (Fig. 2), with an infection of seven years' duration punctuated by acute attacks of pyelonephritis. She had extreme visceroptosis, a slightly dilated right renal pelvis, and an anemia due to profuse menorrhagia. About one year ago she was given a radium treatment to bring about the menopause; this was successful, the infection promptly cleared up, and she has been in good health ever since.

In all of these cases the usual urinary antiseptics were thoroughly tried out. Methenamin, methylene blue and caprokol have been the drugs employed; their value, in my experience, may be rated in the above order. Autogenous vaccines were used in six cases without appreciable effect. In three cases attempts were made to develop a bacteriophage. Dr. George M. Lawson, bacteriologist at the Massachusetts General Hospital, prepared the culture. An active phage was demonstrated in all three cases; in one case the urine contained colon bacilli which were resistant to the phage so no use of it was made. In the other two cases, the phage succeeded *in vitro* in destroying all the bacilli present. In these cases, two subcutaneous injections of the phage were given, two days apart, and the culture was also instilled into the renal pelves. Following this treatment one case showed a negative culture for the first time, but two weeks later the urine again showed colon bacilli. In the other case the urine became free of colon bacilli, but the bacillus mucosus capsulatus, which had not been identified before, appeared in large numbers. Later the colon bacillus was again found in the urine.

Pelvic lavage was the one really effective method of treatment, although there were a number of cases upon which even this measure had no influence. The solutions employed were silver nitrate in a one per cent. solution and mercurochrome, one per cent. It was noted that not infrequently the filling of the pelvis with sodium iodide, twelve per cent., for pyelographic study was followed by marked improvement.

The results actually obtained by pelvic lavage are interesting. Of the eight patients with normal pelves and ureters, three were cured—one after pyelography alone, one after three lavages, one after nine. Infection persisted in five; these patients had been lavaged two, three, eight, eight

and nine times. Of the nine patients with slight abnormalities three also were cured. These were lavaged one, three and five times. Of the six patients not cured, one had no lavage aside from the pyelogram. This was the woman with the double ureter (Fig. 3) and as she lived at a distance, became free of symptoms and showed no pus in the urine, but only a positive culture of bacillus coli, further treatment seemed unnecessary. The others were lavaged one, two, three, eight and eight times. It is not always easy to persuade a patient who feels perfectly well to undergo pelvic lavage, and in fact I doubt whether cases without pyuria which show only a positive culture can be cleared up by this method. Of the six patients with definite abnormalities in the upper urinary tract (aside from the infection) three were operated upon. The patient with left megaloureter and pyelonephritis had a nephroureterectomy (Figure 4); the patient with obstruction at the ureteropelvic junction (Figure 5) had a nephrectomy done by another surgeon; the patient with abscess of the calyx (Figure 6) had a nephrectomy. The specimen in this last case showed a very chronic, thick-walled cavity, holding an ounce or two of pus, situated in the middle of the cortex. The man with an infected hydronephrosis holding eight ounces and a destroyed kidney on the other side was studied in 1913. He disappeared for thirteen years, then came to see me once. He was apparently in good health, but his urine was very foul. He listened to my advice to be thoroughly investigated again, but did not return. The woman with an ulcerated calyx and intermittent hematuria (Fig. 7) will probably come to an operation some day. Her urine is negative for the tubercle bacillus, and

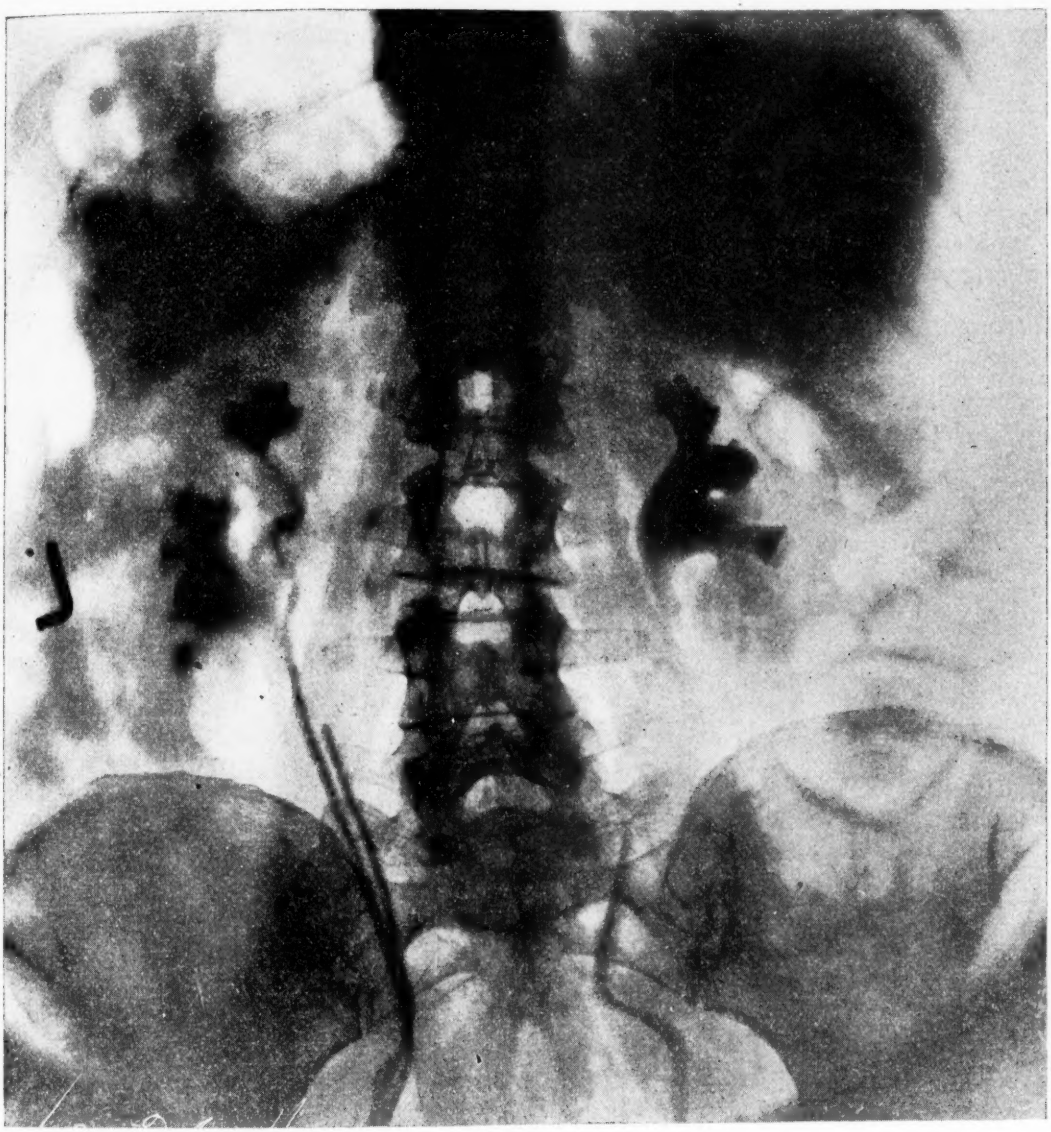

FIGURE 3.
Chronic bacilluria in a case of double ureter.

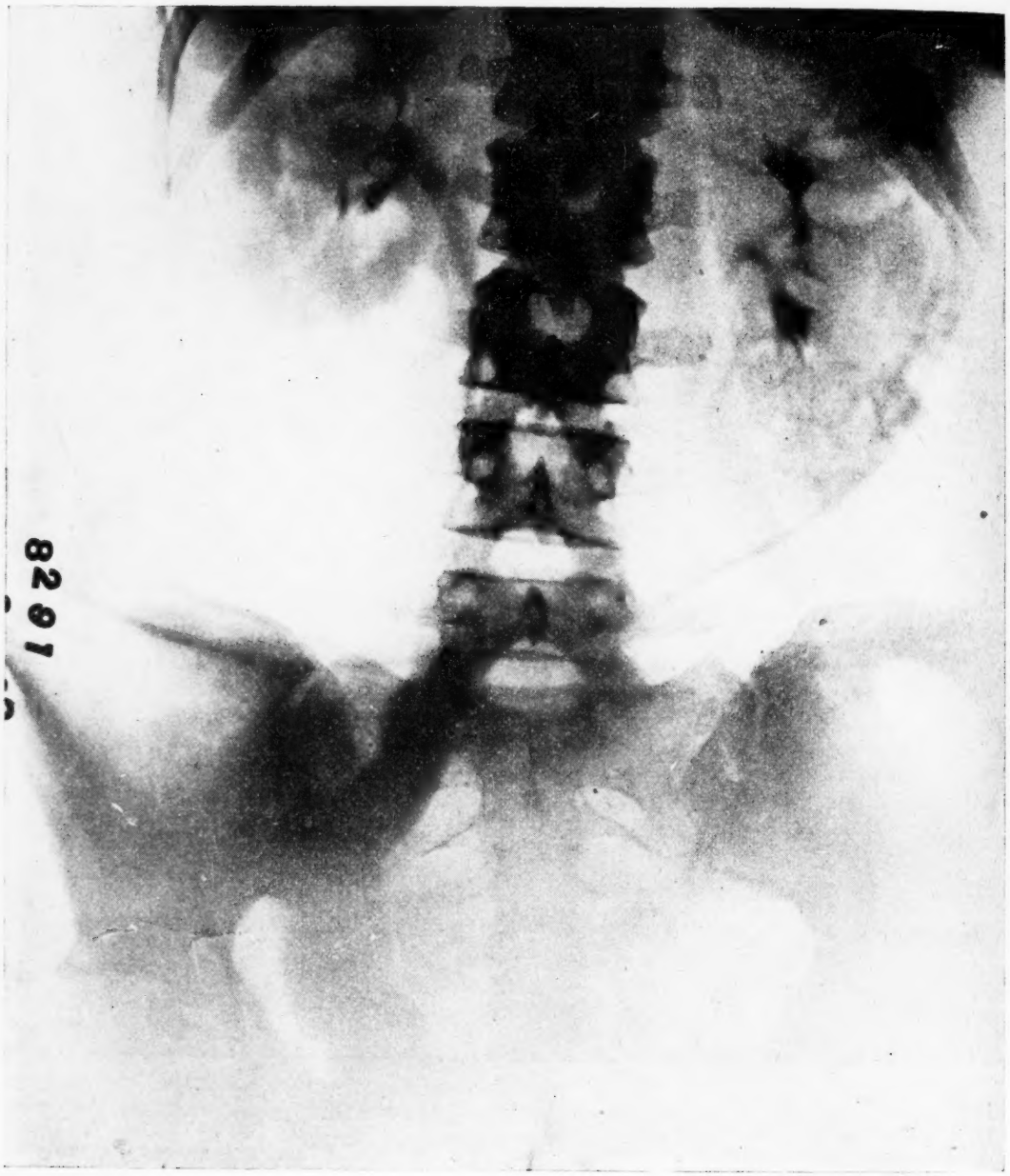

FIGURE 4.
Megaloureter, unilateral, in a woman of thirty. The kidney when removed showed marked pyeonephritis.

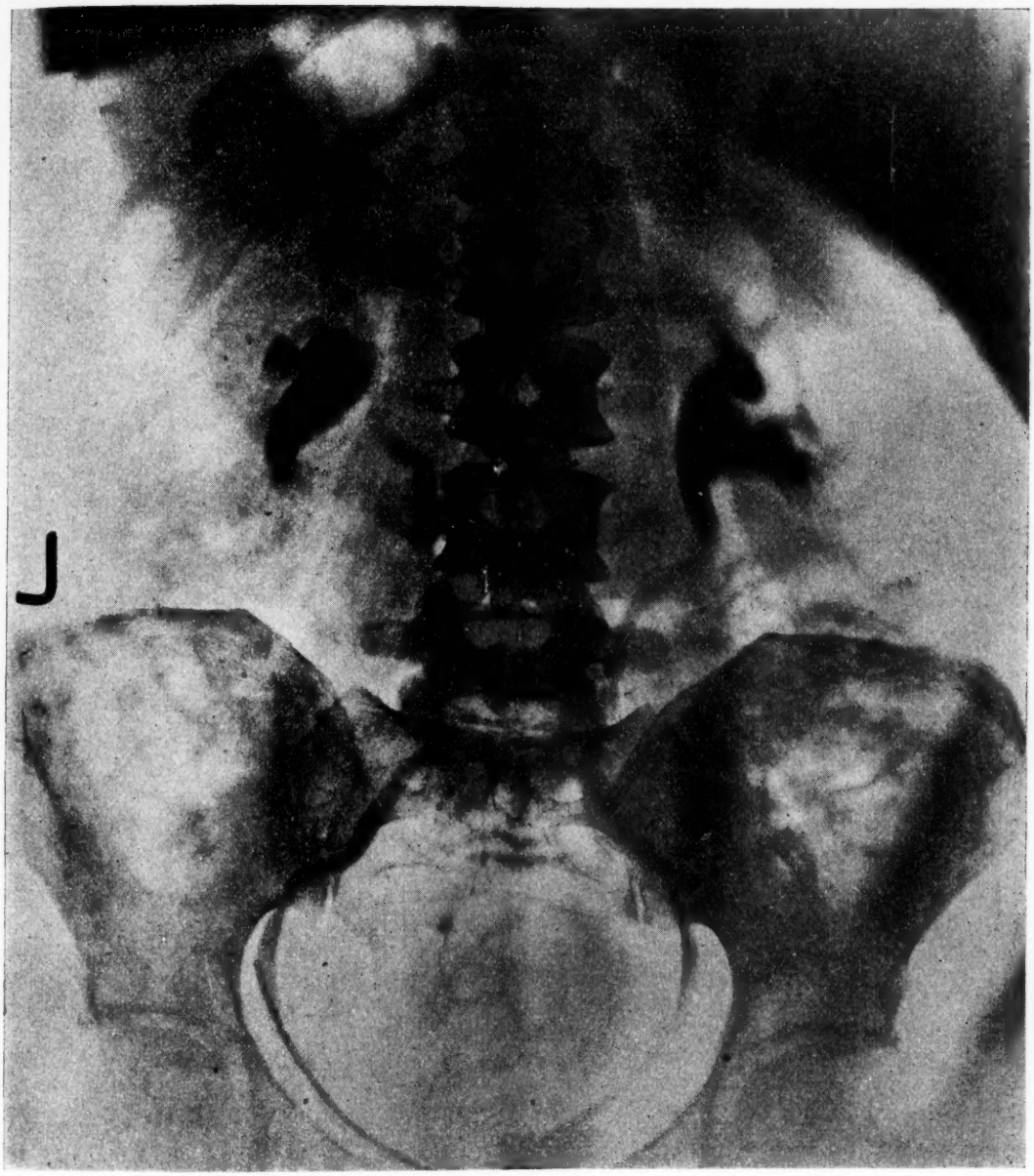

FIGURE 5.

Bilateral pyelitis with recurrent attacks of left sided pain. Left pelvis dilated, with abrupt transition to the ureter. This kidney was removed by another surgeon. No aberrant vessels were found.

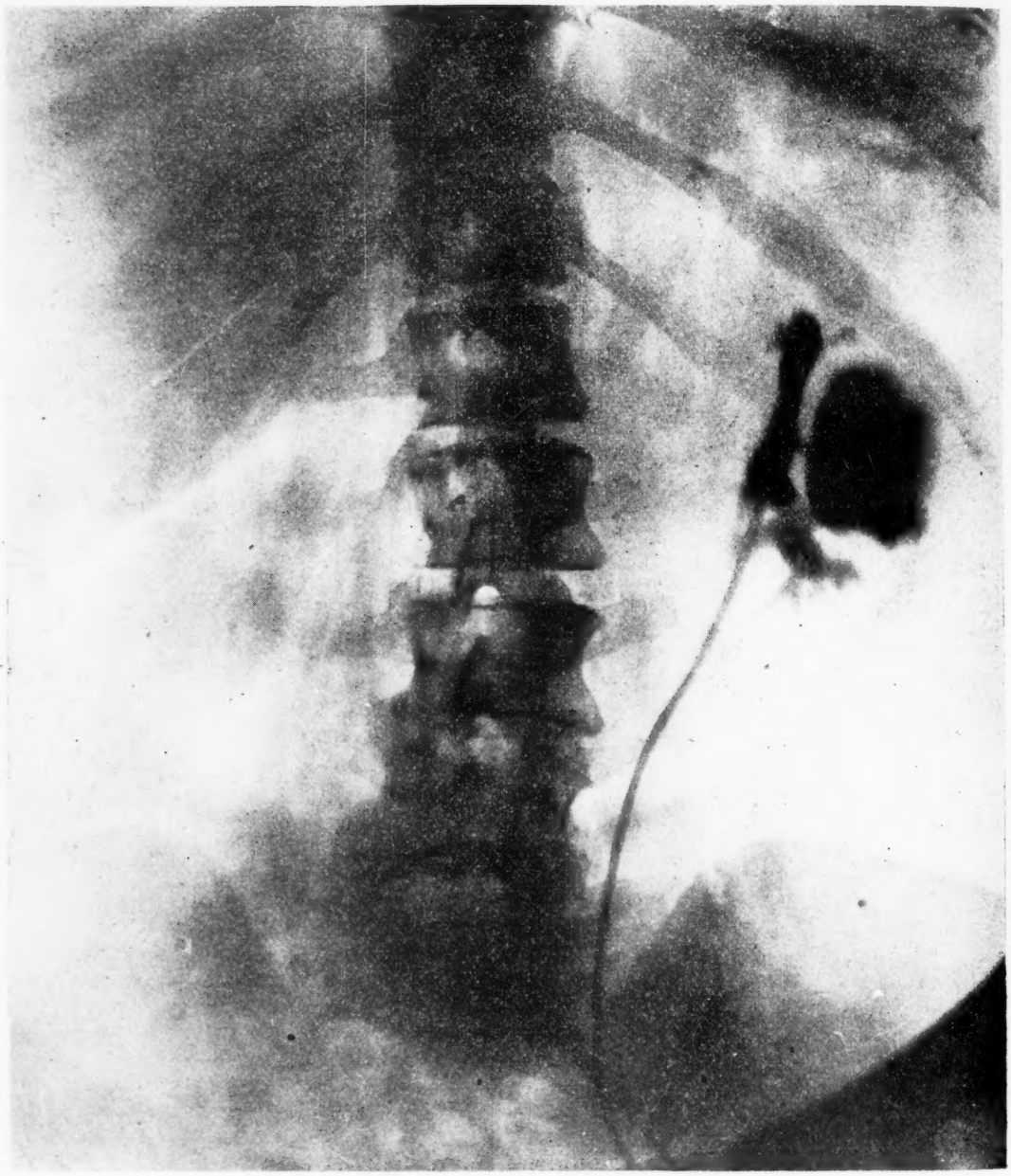

FIGURE 6.
Abscess of the middle calyx. Nephrectomy

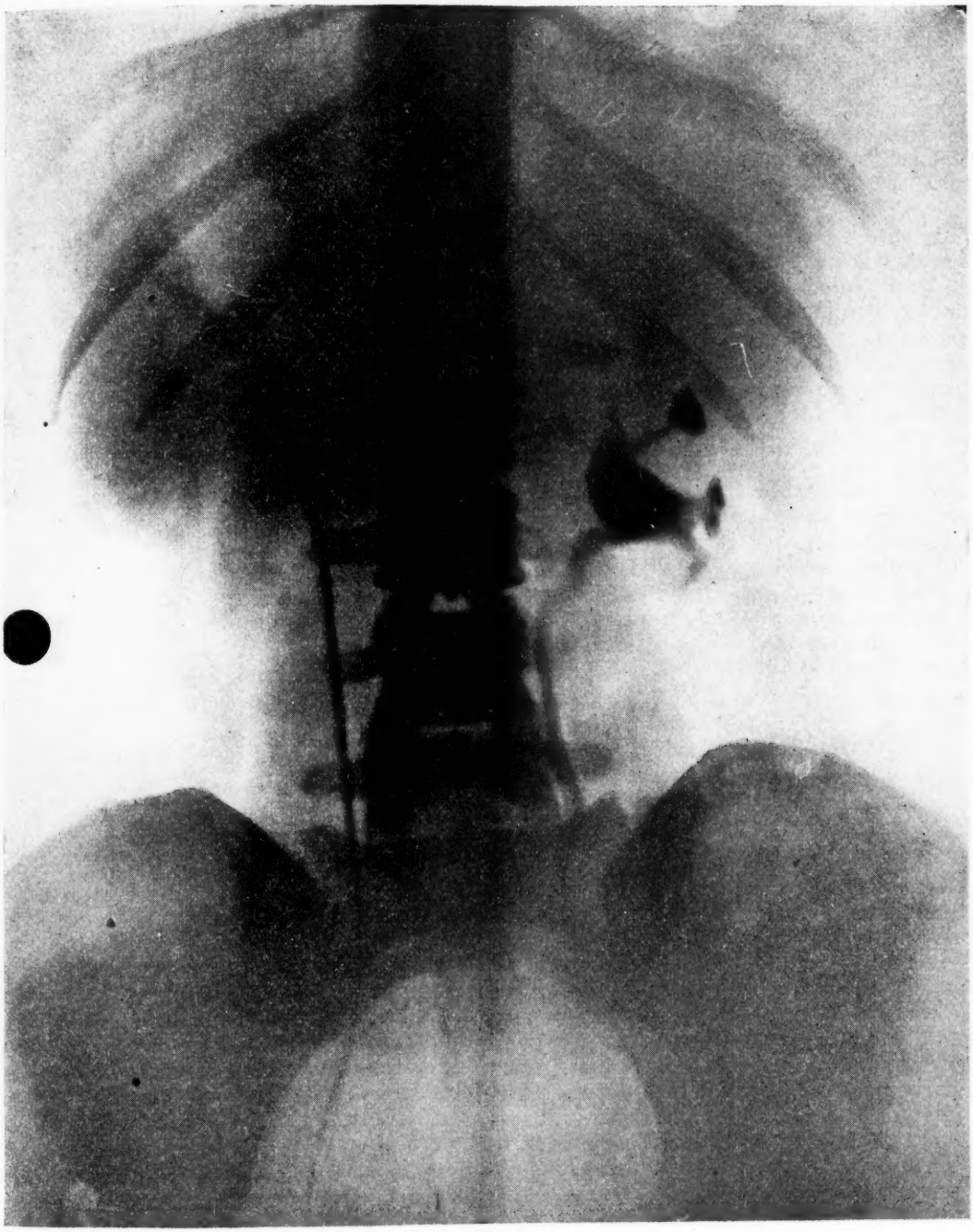

FIGURE 7.

Intermittent right renal hematuria of four years' duration. Colon bacillus infection of the right kidney pelvis. Function normal. There appears to be an obstruction at the uretero-pelvic junction and poorly drained, dilated upper calices.

positive for the bacillus coli; the attacks of hematuria appear to be controlled by lavage with strong silver nitrate solution.

The value of the phthalein test in the study of chronic pyelitis is obvious. This test was employed in practically all of the cases of this series. In those cases in which surgical interference was indicated there was a definite diminution of function from the diseased kidney; one would hesitate to remove a kidney unless this were so. The most noteworthy point in connection with this test was the fact that after years of persistent bacilluria the renal function, in a number of cases, remained perfectly normal. Experience has taught me that, no matter how carefully such a test is done, if the function appears to be markedly decreased, this observation should be repeated before surgery based upon this finding is undertaken.

The treatment of chronic pyelitis is often discouraging to both patient and physician. In the cases in which therapy has been unsuccessful, the physician feels that if he could only find and remove the focus of the infection the pyelitis would clear up. It seems probable that this is not entirely true; while the infection may have originated from such a focus, it is kept up by other factors such as ptosis, faulty drainage and lowered general resistance. In those cases in which the process has progressed so far that the renal function is lowered, it appears unlikely that cure will ever take place. It may be that drainage of such kidneys by means of nephrostomy will accomplish this, but the uncertainty of accomplishing a cure makes one hesitate to suggest this operation unless the symptoms are so acute as to require operative interference. A thorough examination of the patient, the elimination of possible foci and the demonstration of complete urinary drainage from kidney pelvis and from bladder are essential steps in the study of this condition.

SUMMARY.

A review of fifty cases of renal infection impresses one with the difficulty of estimating the various factors concerned in this condition. The etiology is uncertain; peri-dental infections and disorders of the intestinal tract often precede or accompany the onset of pyelitis, but the relationship between them is impossible to determine. The infection frequently persists after the probable cause has been removed. Treatment which succeeds in one case is likely to fail in an apparently similar case. Pelvic lavage is the most valuable therapeutic measure, but it will not clear up certain cases which show obstruction to drainage, and will clear up other cases in which a minor obstruction can be demonstrated. The employment of vaccine and of a bacteriophage has been found to be without value. Steps should be taken to increase the general resistance of the patient, and a thorough pyelographic and functional study of the kidneys should be instituted in all cases in which the infection persists.

COMPARISON OF LABORATORY REPORTS UPON RELEASE DIPHTHERIA CULTURES*

BY DAVID BELDING, M.D.,† AND MINNA FOGEL†

ALTHOUGH numerous studies on the morphological and cultural variations of the diphtheria bacillus have been made, few reports of comparative laboratory efficiency in the cultural diagnosis of diphtheria other than the investigations of Slack are found in the literature. In the course of certain clinical investigations a marked discrepancy was observed in the reports of two apparently reliable laboratories upon diphtheria release cultures. In order to determine the probable causes of this variation, a series of comparative tests was made with cultures from convalescent patients. Since the observations were confined entirely to release cultures on patients who usually harbor few diphtheria bacilli, the results do not apply to the cultural diagnosis of early active diphtheria. However, they have an important bearing upon the discharge of diphtheria patients.

Methods of Work. Five hundred combined nose and throat cultures from seventy-seven convalescent diphtheria patients were sent to two laboratories. Since the cultures were taken primarily for clinical purposes and only at a later date became of laboratory interest, no provision was made for taking the two cultures under identical conditions. Cultures for Laboratory No. 1 were inoculated immediately after taking in the evening. The swabs taken in the morning were sent to Laboratory No. 2, where the culture medium was inoculated after several hours' delay.

The morphological examination of one hundred other cultures from convalescent patients by one laboratory was checked by virulence tests, using the Roemer intradermal method of inoculating guinea pigs with the original culture. In all cases of discrepancy the virulence test was repeated. In sixty of these cultures the comparative morphological diagnoses of the two laboratories were compared with the virulence tests.

In order to determine the personal factor in morphological diagnosis, the one hundred cultures were examined by three groups: (1) tech-

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†For record and address of author see "This Week's Issue," page 900.

nicians of limited experience, (2) technicians of more than one year's experience, and (3) laboratory directors familiar with the laboratory diagnosis of diphtheria. To simplify the procedure a single stain, Loeffler's methylene blue, was used.

STATISTICS

Disagreement between two laboratories occurred in 43 per cent. of five hundred combined nose and throat release cultures. As indicated in Table 1, Laboratory No. 2 gave 6.2 per cent. more positive reports than Laboratory No. 1 and apparently showed a greater ability to detect positive cultures.

TABLE 1

Comparison of the Reports of Two Laboratories upon Five Hundred Release Diphtheria Cultures

Reports	Per cent.
Positive	
Laboratory #1	48.2
Laboratory #2	54.4
Agreement	
Positive	29.8
Negative	27.2
Total	57.0
Disagreement	
Laboratory #1 Positive	18.4
Laboratory #2 Positive	24.6
Total	43.0

Cultures in the same laboratory, taken on different days, from convalescent patients harboring diphtheria bacilli, show a similar variation and roughly approximate the disagreement between two laboratories. In thirteen convalescent diphtheria carriers, 38 per cent. of four hundred cultures over a period of several weeks were reported as negative. The chief sources of error appear to be the scarcity of organisms and the technical difficulties in taking perfect cultures. A particularly discouraging feature is the irregular distribution of positive and negative reports in the same patients. Two typical illustrations are given in Table 2.

cultural report was positive in six and negative in five.

In eighteen patients, sixty cultures taken by the separate swab method, at different hours, were examined in the two laboratories. Only the cultures of Laboratory No. 1 were tested for virulence. A comparison of the two laboratories and the virulence test is given in Table 3.

TABLE 3

Morphology and Virulence

Reports	Per cent.		
	(A) Lab. #1 vs. (B) Lab. #2	(A) Lab. #1 vs. (B) Virulence	(A) Lab. #2 vs. (B) Virulence
Agreement			
Positive	32	30	33
Negative	28	53	30
Total	60	83	63
Disagreement			
(A) Positive	7	8.5	32
(B) Positive	33	8.5	5
Total	40	17.0	37

Laboratories No. 1 and No. 2 showed 40 per cent. disagreement, which is approximately the same as the 43 per cent. obtained in the larger series of five hundred cultures. The disagreements were chiefly in positive findings with Laboratory No. 2. Laboratory No. 1 and the virulence test gave a disagreement of 17 per cent. equally divided between positive and negative reports. Laboratory No. 2 and the virulence test gave a disagreement of 37 per cent., chiefly positive cultural reports and negative virulence tests, which is to be expected inasmuch as only the cultures of Laboratory No. 1 were tested for virulence.

Microscopical Diagnosis. To determine the influence of the personal factor on the morphological diagnosis of the diphtheria bacillus, one hundred release cultures were examined by three groups of workers. The results were compared with a standard formed by repeated virulence

TABLE 2

Serial Cultures from Diphtheria Carriers

Culture		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Patient A	Lab. #1	-	+	+	+	+	+	+	-	-	+	-	+	-	+	-	+	+	+	+	+
	Lab. #2	-	-	-	+	+	-	+	+	-	-	-	+	+	+	-	-	-	+	+	-
Patient B	Lab. #1	-	-	+	-	+	+	+	+	-	+	-	+	+	-	-	+	-	+	+	+
	Lab. #2	+	+	+	+	+	+	+	-	-	-	-	+	+	+	+	+	+	+	+	+

Virulence. In one hundred cultures the accuracy of Laboratory No. 1 was checked by virulence tests. Agreement resulted in eighty-nine. In the eleven where disagreement resulted the tests, which in turn was checked by the aggregate culture reports. In this way the error of individual interpretation presented in Table 4 could be approximated.

DISCUSSION

Virulence Tests. The intradermal method of testing diphtheria virulence with mixed cultures proved satisfactory when the reading was based on the seventy-two hour slough and subcutaneous lesions. The test is not infallible, but a careful technique will eliminate most sources of error. Three per cent. of erroneous virulence tests was found in this series. Morphologically positive cultures may give negative virulence tests. Mixed cultures which have so few diphtheria bacilli that they are overlooked on microscopical examination may give positive virulence tests. More accurate results were obtained with large than with small guinea pigs as noted by Coca, Russell and Baughman. A sick or feeble guinea pig may give a negative reaction with a positive culture. Suspensions of cultures in Loeffler's blood serum tubes in physiologic saline were found to give positive virulence tests after standing as long as seven days at room temperature, indicating that delay in the performance of the test is not a serious factor.

TABLE 4

Errors in Morphological Diagnosis of Release Diphtheria Cultures

Examiner	Per cent. of Error		
	Positive	Negative	Total
Inexperienced Technicians	15	15	30
Experienced Technicians	10	11	21
Laboratory Directors	5	5.5	10.5

Technical Errors. So many sources of technical error are present in the morphological diagnosis of diphtheria that the exact rôle played by each of the various factors is difficult to determine. At times Loeffler's blood serum medium, because of the reaction or the presence of antagonistic ingredients, tends to inhibit the diphtheria bacillus and favor the growth of other organisms. Testing the medium with a laboratory strain of *C. diphtheriae* gives some indication of its suitability. The diphtheria bacillus is sensitive to a temperature above 37.5°C. For this reason, incubation above body temperature tends to produce feeble growth and abnormal forms.

Occasionally the preparation of the smear is a source of error. In one instance a smear made from one part of a culture tube revealed no diphtheria bacilli, while they were present in another smear from the same tube. A comparison of smears made by removing the surface growth with the platinum loop with those made by means of a saline suspension of the entire slant presents little difference in respect to diagnosis if a careful microscopical examination is made, but indicates that the suspensions give somewhat easier and more decisive readings. Special stains, such as Albert's, Mallory's, and Kinyoun's make the detection of the diphtheria bacillus easier, but at times lead the ordinary laboratory technician to the erroneous identification of other organisms as the diphtheria bacilli. Familiarity with a single stain appears to be the method best adopted for any one laboratory.

Interpretation. In the hands of experienced workers the morphological diagnosis of the diphtheria bacillus constitutes a relatively small but nevertheless appreciable share of the errors in laboratory diagnosis. Owing to the small number of diphtheria bacilli present, release cultures give the maximum opportunity for this source of error. The results in Table 4 show that the error of interpretation ranges from 10.5 to 30 per cent., according to the experience of the workers. The figures for the experienced laboratory workers, 10.5 per cent., agree closely with the second series of Slack and probably represent the minimum error in the morphological diagnosis of release cultures.

Errors in Taking Culture. The diphtheria bacilli, especially after antitoxin treatment, tend to disappear from the throat. On one occasion a series of cultures taken one week or more after the onset of the disease by two laboratories gave an average of 53.1 per cent. positive.

The location, as well as the number of organisms, influences the percentage of positive cultures, because of the tendency of the diphtheria bacillus to localization and the resulting inability of the person taking the culture to reach the organisms. The combined nose and throat culture, because of the abundance of other organisms, tends to give a lower percentage of positive findings than separate nose and throat cultures. Mechanical difficulties in taking the culture decrease the number of positive reports; e. g. children under two years gave 20 per cent. positive as compared with 56 per cent. for older children, and laryngeal diphtheria patients gave 30.8 per cent. positive as compared with a general average of 53.1 per cent. Negative reports are more frequent in severe cases of diphtheria where the invading secondary bacteria are numerous.

The discrepancy between the reports of Laboratories No. 1 and No. 2 can be explained largely by the fact that the cultures were not identical, being taken at different times and on different swabs. When diphtheria bacilli are few, as in the convalescent stage, the swabs may not always come in contact with them. When separate swabs are used even for simultaneous cultures, both may get the organism, both may fail, or one may fail. The agreement of Laboratory No. 1 with the virulence test and the errors determined for technical interpretation indicates that about one-third of the 43 per cent. difference in release cultures between the two laboratories may be attributed to laboratory technique and interpretation, and the remaining two-thirds

to the method of taking the culture. For this reason, a comparison of laboratory efficiency in the diagnosis of diphtheria by cultures taken on separate swabs at different times is of little value. For actual laboratory comparison the error of taking the culture can be eliminated best by using a single swab, inoculating a small amount of broth, and inoculating Loeffler's blood serum with swabs soaked in the broth.

Release Cultures. It is ordinarily customary to require three successive negative cultures for the release of diphtheria patients. In fifteen of the seventy-seven patients in the first series the first three cultures were negative. Of the remaining sixty-two patients, twenty-seven never gave three consecutive negative cultures with either laboratory. Of the other thirty-five Laboratory No. 1 would have released 32 per cent.; Laboratory No. 2, 37 per cent.; and both laboratories, 13 per cent. In patients harboring virulent diphtheria bacilli the three negative culture release system would have discharged over one-third, if the reports had been made by one laboratory. In order to approach more closely perfection of quarantine, at least six or more consecutive negative cultures over a period of three to six weeks should be obtained before release from all patients who have been found to harbor the bacillus during convalescence. In this respect our conclusions agree with those of McCartney and Harvey who, because of the intermittent occurrence of the bacillus, recommend six tests over a period of six weeks. Further study of its economic soundness should be made before instituting such a program.

SUMMARY

1. Two laboratories disagreed in 43 per cent. of five hundred cultures taken at different hours from convalescent diphtheria patients. The error of taking the culture accounted for about two-thirds of the discrepancy between the two laboratories. Comparisons of laboratory efficiency by cultures taken on separate swabs at different times is unreliable.

2. In one hundred cultures from convalescent diptheria carriers, which were checked by virulence tests, the morphological diagnosis by three groups of laboratory workers was compared. Inexperienced technicians were 70 per cent. efficient, experienced technicians 79 per cent., and laboratory directors 89.5 per cent. The errors of omission (negative) and commission (positive) were about equally divided. It may be assumed that when the findings of an experienced technician are checked by a laboratory director, the error from interpretation should be less than 10 per cent. even in release cultures.

3. The intradermal virulence test with the original mixed culture proved satisfactory when the reading was based on the seventy-two hour slough. Positive tests could be obtained in saline suspensions on the blood serum slant which had remained seven days at room temperature.

4. Provided economic conditions permit, six consecutive negative cultures over a period of three to six weeks should be required before the patient is released, if a positive culture is obtained during convalescence.

Acknowledgment is made of the co-öperation of Dr. F. H. Slack.

BIBLIOGRAPHY

Coca, A. F., Russell, E. F., and Baughman, W. H.: Journ. Immunol., 1921, 6, 387.

McCartney, J. E., and Harvey, W. C.: (Quoted Lancet 1928, 1, 245).

Slack, F. H.: Boston Med. and Surg. Journ., 1922, 187, 443.

INFECTION OF THE ANTRUM OR MAXILLARY SINUSITIS

BY OLIVER A. LOTHROP, M.D.*

INFECTION of the antrum is so frequent that a partial review of the subject is justified.

The antra, or maxillary sinuses, are located, one on either side of the nasal chambers. Anteriorly an antrum is in relation with the bones forming the face, inferiorly with the roof of the mouth and alveolar process, superiorly, with the floor of the orbit, through which passes the infra-orbital nerve. The antrum extends back as far as the third molar tooth and descending portion of the palate bone. The internal surface forms the lower part of the outer wall of the nasal chamber, and to this wall is attached the inferior turbinate. Just above the attachment of the lower turbinate, covered by the lower portion of the middle turbinate, and about halfway between the anterior and posterior extremities of the antrum, is the osteum. This is about 2 or 3 mm. in diameter, and through this opening the antrum is able to perform its function of resonance, ventilation and drainage. The antra vary in size, not only in different individuals, but also in respect to the two sides. The walls often vary in thickness and there are occasionally incomplete partitions. The younger a patient, ordinarily, the thicker the wall; and also the smaller the antrum the thicker the wall. Small antra and thick walled antra cause mechanical difficulties in treating the infections, and because the younger patients more often have these conditions, it is obvious that it is harder to relieve sinusitis in children than in adults.

The antrum is lined with ciliated epithelium, which carries secretions and discharges up to the osteum and passes them through it into the nasal

*For record and address of author see "This Week's Issue," page 900.

chambers. It is interesting to note that the ciliated membrane so functions that it carries discharges through the osteum in those cases where a large opening has been made through the antro-nasal wall inferior to the lower turbinate. This observation can be readily made as one sees the pus come from the osteum and stream down over the lower turbinate during a post operative convalescence. Much has been said about dependent drainage, and that nature made a mistake in placing the osteum nearly at the top of the antrum. This, apparently, is not so. Gravity is not a factor in the drainage of a sinus, except in cases where the cilia have become paralyzed, where an antrum is overloaded with pus, or where there is a blocked osteum. An artificial opening under the lower turbinate gives immediate relief to these conditions, permits ventilation of the antrum, and supplies an opening through which irrigations may be performed as a means of restoring a diseased lining to its normal condition.

There are two main causes for antrum infection: one arising from some infection of the nasal mucous membrane, such as influenza, grippe, colds, scarlet fever, measles, syphilis, etc., and the other extending from an infection of a diseased tooth. Not many years ago it was thought that fully 50% of the infected antra were of dental origin, but now, with the frequent use of the x-ray and vigilant dentistry, very few teeth are allowed to get to the stage where infection breaks through and discharges into the antrum. On the other hand, with our apparently increasing nasal infections and epidemics of grippe and influenza, the cases of sinusitis of nasal origin are very much in the majority. No age is exempt from sinus infection. It is more common in young children than is usually supposed, and though commonest in middle life, is not unusual in old age. The infection may be an acute attack in a previously uninfected antrum, or may be a recurrent acute attack in an antrum previously infected. A previously infected antrum is often more susceptible to subsequent infections, probably because it never returned to a completely normal condition. Complete recovery from an acute attack generally leaves the antrum practically normal, but a neglected acute attack may readily pass into a subacute and chronic condition, which often persists a lifetime. The mucous membrane of the antrum is normally smooth, thin and pale. When infected, it becomes very thick and congested.

There are cases where the middle turbinate is hypertrophied or pushed outward against the osteum by a septum deviated to that side. Such anomalies predispose to infection. In these cases, it might be advisable, when operating, to remove a section of the middle turbinate interfering with drainage from the osteum. Correcting a deviated septum is not advisable in acute cases. The majority of cases, however, do not require removal of the turbinate, because as soon as the swelling subsides there is sufficient space for drainage.

Many chronic antra go on to polyp formation, and these polyps may pass through the osteum and appear in the nasal chambers. By the time polyps have formed in the antrum, infection has commonly extended to other sinuses, so we find also polyps of ethmoidal origin appearing in the nose.

The symptoms of an acute infection of the antrum are those of a continued "cold" or a persistent catarrh, and if only one sinus is involved, generally unilateral. There is more or less obstruction to nasal breathing and loss of resonance. In only a small proportion of acute cases is there complaint of pain. The pain is caused either by a very inflamed membrane lining of the sinus, or by pressure because the osteum has been nearly occluded and is not patent enough to allow the pus to escape as fast as it is formed. With the pain, there is often tenderness of the cheek, and, in some cases, sensitiveness of the eye. The pain and tenderness, however, are generally of short duration, ordinarily not persisting over a week or ten days. With this pain and tenderness, or even without it, there may be a certain amount of general headache. The headache may be limited to one side or located in the back of the head. Reflex cough is a common and annoying symptom. Rarely is the temperature high.

Symptoms of chronic sinusitis may be very slight. In fact, if one depended upon symptoms alone, the condition might be entirely overlooked. There is a little post-nasal catarrh and occasionally a patient may detect a little odor in the nose, but this odor is not noticed by another individual, except when pus is evacuated by washing or suction. Occasionally, there is a certain amount of headache. Most of the mild chronic cases are discovered either through a routine examination or through a search by x-ray, transillumination, etc., in the endeavor to find a focus of infection that may account for some ailment in another part of the body. The chronic cases with polyp formation have quite a different picture, because these patients complain of sneezing, watery discharge, nasal obstruction, and often give a history of previous removal of polyps.

The presence of antrum infection can best be ascertained by examination. Discharge in one or both of the nasal chambers is observed. There is often a little swelling or polypoid degeneration of the middle turbinate, and if polyps are present, they are in evidence. Transillumination will show a shadow on one or both sides, but unfortunately the shading alone is not sufficient proof, because a small and thick walled sinus may diminish the light without being pathological. If there is doubt, an x-ray will readily differentiate a small and thick walled sinus and a normal one. It will also show cysts, thickened or pathological mucous membrane and growths.

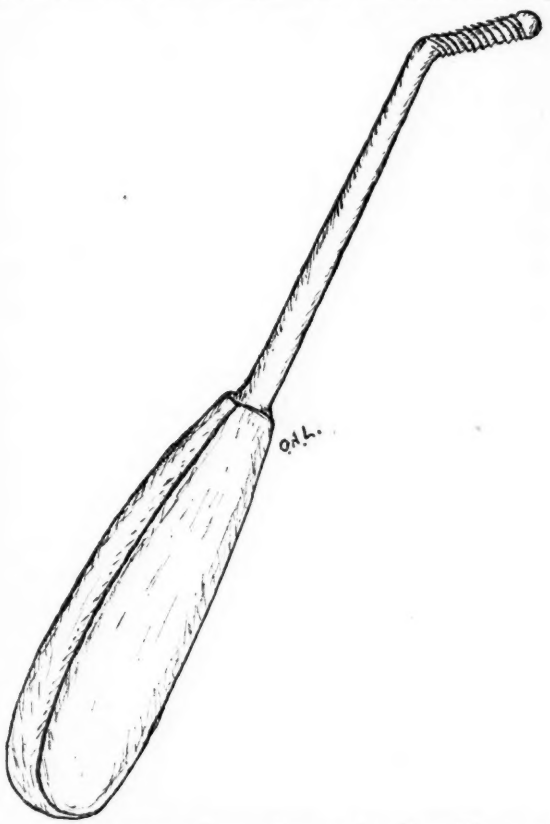
Washing of the antrum is another diagnostic procedure. After cocainizing the antro-nasal wall under the inferior turbinate, a sharp canula is inserted into the antrum and the antrum irrigated. If the nasal chambers have been cleaned of secretion first, then any pus or turbidity of this antrum wash proves an infection.

A few cases present a blocked osteum. This occurs either from intense swelling in very acute cases, or in cases where there is a polyp, which acts as a ball valve. To wash such an antrum, either a two-way canula must be used or two canulas must be introduced through the antro-nasal wall. If it is planned at this time to take down the antro-nasal wall, this may be done, and then there will be sufficient room around the canula for the returning fluid.

It is possible for the primary acute nasal infection not only to involve one or both antra, but to infect some of the other sinuses, such as the ethmoidal group and the frontal sinuses. As a rule, these initial infections of the other sinuses clear up promptly along with the antrum. If, however, the antrum infection is allowed to become subacute, passing on to chronic, it may prevent spontaneous recovery of the other sinuses, or secondarily involve the adjacent sinuses, particularly the anterior ethmoidal group and the frontal sinus.

There are very few serious complications from an infection limited to the antrum alone, it being extremely rare to have osteomyelitis of the antral walls, extension to any of the large veins, or to the meninges. Blood stream infection as serious as septicemia also seems to be extremely rare, and perforations are also uncommon. However, extension to the adjoining sinuses can, through consequent sequelae, produce many serious complications like thrombosis, serious osteomyelitis, and meningitis. There are many secondary manifestations that might be brought to your attention at this point. A chronic antrum may act as a focus of infection, and that may cause any of the systematic manifestations, such as would result from an infected tooth or infected tonsils. These would include arthritis, neuritis, infections of the heart, kidneys, skin and stomach. Any part of the eye may be affected causing loss of vision. Involvement of the auditory nerves may bring about either a loss of hearing or vertigo. Many of the sinus infections that produce polyps or polypoid degeneration of the mucous membrane are a prolific source of asthma, reflex coughs and bronchitis.

The treatment is both medical and surgical. The onset of an acute nasal infectious disease would require that the patient be put to bed, have sedatives for pain and sleeplessness, and other medication as various symptoms arise. Violent coughing and blowing of the nose should be curtailed because these acts increase intranasal pressure, and may force septic material into an otherwise uninfected sinus. Nasal douches are distinctly contraindicated in all inflammatory diseases, because this free fluid is not antiseptic enough to destroy the bacteria, and it may simply wash them into a sinus or the eustachian tube. Astringent sprays like cocaine, adrenalin, and ephedrin may be cautiously used. Shrinking up of the swollen tissue may establish adequate drainage with relief of the pressure and symptoms. Thus in a few days, in some cases a week or two, the symptoms may subside and the discharge rapidly lessen. If, however, this progressive improvement does not manifest itself, the discomfort can generally be promptly relieved by moderate surgical interference. The antro-nasal wall is anesthetized by



the application of cocaine and adrenalin, and the antrum irrigated by inserting a sharp canula through the antro-nasal wall. In some cases, this one wash removes the pus from the antrum, takes the load off the cilia, and the antrum is able to protect itself from further accumulation. However, most cases are not as simple as that, and the opening in the antro-nasal wall under the lower turbinate must be enlarged sufficiently so that there will be a free ventilation of the antrum, and an opening adequate to permit frequent irrigations of the antrum without a repuncture of the wall for each subsequent irrigation. It is important to be positive that the acute cases have completely recovered, for it is a great misfortune to allow them to pass into a possibly unnoticed subacute and subsequent chronic condition.

The antro-nasal wall can be readily punctured

and enlarged by the use of a rasp and nasal punch. The rasp used is one devised by the writer some twelve years ago. Bent 45 degrees to the shaft, it has diagonal teeth and cuts on one side only. It is protected at the end by a smooth, rounded surface, and on the opposite side from the teeth, it is smooth and rounded and the teeth do not extend near enough to the shaft to make any rough surface that might touch the septum. By having the end smooth, it does not injure the under edge of the turbinate so that adhesions occur later. A pair is necessary; one for the right antrum and one for the left. The rounded point, contrary to expectation, penetrates the wall more readily than a sharp one would, because it slides to the area of least resistance and there readily penetrates. They are designed as a combination of the Knowles antrum rasp and the Lothrop antrum knife.

In cases of sinusitis that have become subacute or chronic a little more radical surgery is required. Rarely is it necessary to disturb the lower turbinate in acute cases, but in the subacute and chronic types it is necessary to have as large and permanent an opening as is possible. The antro-nasal wall is taken down as widely as the anatomy allows. It must be borne in mind that the descending palatine artery extends vertically down through the posterior part of the antro-nasal wall ¼ inch anterior to the posterior extremity of the antrum. If there is a good space between the lower edge of the inferior turbinate and the floor of the nose, the turbinate need not be disturbed, but if it is a low hanging turbinate and tends to cover the direct opening into the antrum, a section opposite the opening in the antro-nasal wall should be removed from the under side of such a turbinate. If so done, this partial removal of the turbinate does no harm. After establishing this opening, frequent irrigations of the antrum should be carried out until the antrum is clean and the mucous membrane has restored itself to normal function. Should this opening tend to close or become inadequate for ventilation, it must be re-opened because the secret of curing the chronic antrum infection is to have a large and permanent opening. The opening is often difficult to keep patent when made during acute infections. It is still more difficult in small and thick walled sinuses, and most troublesome in children, owing to the smallness of the parts, and regeneration tendency.

The duration of an infection is not an indication of its intractability to treatment. It is the type of pathology present and the resistance or susceptibility of the patient that determines the length and completeness of the convalescence. An antrum of thirty or forty years' duration may become clean long before an antrum of a few months' duration.

It is possible for the patient to contract another acute infection of the nose, which will cause a re-infection of the antrum. It will, however, not be as severe or lasting as would have been the case had the antro-nasal wall not been opened previously. Generally a few irrigations will again restore it to its normal condition. Failure may arise, because before the antrum was treated other sinuses had become involved. In such a case, the other sinuses must have appropriate treatment. There are, however, certain individuals who are extremely susceptible to acute infections, and they are more or less disposed to have frequent recurrent infections of their sinuses. Many of these patients are found to be susceptible to pollens, dust, hair and other substances that cause allergic reactions.

When an antrum infection is found in dental practice, it is not uncommon to have it treated by an opening made into the antrum through the tooth socket and alveolus. If the antrum infection is of dental origin, and only a small opening is made, sufficient for irrigations, this procedure may be permissible. However, any large openings that might not heal over and, therefore, persist must be decidely condemned. These openings are extremely hard to close, and if not closed, the patient is continuously forcing food, saliva, fluids and bacteria into the antrum and keeping it infected. If, after extracting a tooth, a fistula is found to penetrate to the antrum through an area of local osteomyelitis, and the antrum is irrigated a few times through it but does not respond, it is much better to make an opening through the antro-nasal wall and allow the dental fistula to heal. Anatomically, it was never intended to drain an antrum through the mouth.

There is still a small percentage of patients who, in spite of the previously outlined treatment, fail to get well. It is impossible, ordinarily, to separate these patients from the others until the above procedures have been tried. They are those whose mucous membrane has become so profoundly diseased that it is impossible for the membrane to restore itself to normal function, and the discharge persists: also, those who have polyps, especially polyps associated with asthma, and those patients who have arthritis or some serious or important secondary manifestation. Such patients should be submitted to a still more radical procedure. No radical antrum operation however, should be done in acute or subacute cases, or during an acute exacerbation of a chronic case.

The radical operation consists in the total removal of every vestige of diseased membrane. A granulation tissue will then cover the surface of the antrum, and this, in turn, will be covered by a regenerated mucous membrane. In order to curette thoroughly such an antrum, it is necessary to make an incision over the alveolus in the so-called canine fossa, and penetrate the antrum at that point, where direct vision and access is afforded. If the antro-nasal wall had not been taken down previously by the intra-nasal method, or had not been adequately done, it should be completely removed at this time.

THE INTERDEPENDENCE OF THE DOCTOR AND SOCIAL WORKER IN LEGAL ADOPTION*

BY IDA R. PARKER†

THREE reasons seem to justify taking the time of the Medical Staff to consider the subject of legal adoption.

First. Adoption is a matter of concern to you who constitute the Medical Staff of this Hospital. In the maternity department of this institution 1155 live births occurred between January 1, 1928 and five o'clock today. Approximately 75 of these babies are known to be illegitimate, while a number of others were conceived before the marriage of their parents. Although the child adopted is by no means always illegitimate, it is true that the illegitimate child may be regarded as a potential if not an actual adoption problem.

Second. Adoption is a matter of concern to you as physicians in private practice who are appealed to more or less frequently by the natural family to help dispose of an unwanted child, or by prospective adoptive parents to secure a much desired one.

Third. This is an opportunity for physicians and social workers to consider this problem together. Adoption, in its broad aspect, is a large social question, too complex to be handled effectively by physicians, by social workers or by members of the legal profession, working independently. The problem needs to be met by physicians, social workers and members of the legal profession working closely and understandingly together. Adoption in the individual case is an intricate piece of child placing which is recognized by experts in child welfare as a specialty within that field. Doctor and hospital social service worker, co-öperating, are peculiarly responsible for seeing that child placement is done only by those skilled by training and experience in home finding and child placement.

STRATEGIC POSITION OF THE PHYSICIAN

Because it so clearly points out the strategic position of the doctor in this matter, let me quote from the magazine of a maternity hospital and home located outside Massachusetts, which, in its twenty-four years of existence, has advertised its services among the medical profession only. "The young woman who must needs have attention seeks advice from her family physician. He, if he be a conscientious member of the medical profession, will demand that she be 'carried on' until full term. But almost all refuse to condemn the mother to a life of shame and make her life among her friends intolerable. They refuse to have their patient forced, or her people forced, to keep the unsought and unwelcome offspring. It is apparent, too, to the average doctor, that there is, among good substantial homes, many times a real need for a baby, the kind of baby that an educated woman is proud to mother. Then, there is the reputation of the family, that one who fills completely the rôle of advisor considers of importance. Lastly, the community whose welfare is definitely and adversely influenced by each girl of good family who goes wrong, 'especially if she or her baby are kept at home.' It is to serving these humanitarian physicians in the care of their unfortunate cases that the [Home] lends all its energies." In the same magazine one reads: "Then, too, the medical fraternity, knowing the class of babies in the [Home] Nursery and the need of every home for a child, has for years proven valuable assistance in finding homes." This maternity hospital's idea of adoption is that held by many persons, i.e., merely the doing of "the twofold good of placing infants, starving for love and care, in the arms of parents yearning to bestow it."

After spending more than two years studying the problem of adoption in Massachusetts, I reject this too simple conception as fallacious because it overlooks two facts: *first*, that the child for adoption, even if he is illegitimate, belongs, like any other, to some family group, to whose care and protection he has a right, and that the severing of these ties of blood is a serious matter for him, for his natural family, the adoptive family and the community; *second*, that although many adoptions have a happy outcome, no figures are yet available to show what proportion are successful. Meanwhile the tragic consequences of unsuitable adoptions, as evidenced in the records of child caring agencies, protective organizations such as the Society for the Prevention of Cruelty to Children, juvenile courts, and in the records of our own social service departments, call for a re-examination of this method of child care.

LEGAL SIGNIFICANCE OF ADOPTION

What, then, is adoption? Adoption is a means of legally severing the ties of blood relationship and of creating between the individual thus deprived of his own family and the persons wishing to take him into their own home the legal rights and obligations of parent and child. Note that it is the substitution of the artificial for the real family relationship. Provision for adoption appears in the statutory law of every state in the Union. These acts show the influence on American legislation of two distinct lines of

*Read before the Medical Staff of the Massachusetts Homoeopathic Hospital September 28, 1928.

†For record and address of author see "This Week's Issue," page 900.

thought—the one the conception of adoption as a means of acquiring an heir to property, the other the idea of a new human relationship entered upon primarily for the good of the child and for the purpose of giving him a home. Parental consent lies at the foundation of the original idea of adoption. The natural parent entered into a contract with the adoptive parent in behalf of the child. In 1851 Massachusetts passed what may be considered the first adoption law in the United States. It provides for a petition to a probate court, written consent of the child's parents if living, joint petition of the adoptive parents if they are married and decree by the judge if "satisfied" that the adoption is "fit and proper." It will be seen that Massachusetts recognizes and attempts to safeguard ties of blood by requiring the written consent of those most closely related; it regards the severance of these ties and the voluntary assumption of parental obligations by others as the concern of the State by requiring that a court—the representative of the people—shall be satisfied that a decree is "fit and proper" before making it; it recognizes the rights and duties of the adoptive parents, once the decree is made, as superseding those of the natural parents. It implies that adoption exists for the welfare of the child. Once issued, a decree can be vacated only if the probate court finds that fraud or deceit was practiced upon it in obtaining the adoption.

"Although parental consent is essential, the adoption acts of the various States show a gradual development from a transaction of a contractual character towards a procedure in which human values are carefully considered and the supervisory duty of the State is recognized."[1] "A tendency has been noted toward the use, not of minutely drawn statutory provisions, but of a broad grant of power to an administrative board equipped with social workers trained in the investigation of problems of neglected and destitute children. Judicial action is guided by the recommendation of such State boards. The advisability of severance of the relations between the child and its parents and the suitability of the proposed foster home both receive consideration. Attention is also directed toward the preservation of family ties whenever this would promote the child's welfare, and laws dealing with desertion and non-support have emphasized the duty of parents to care for their own children whenever possible. These tendencies are in contrast with earlier policies which have seemed to encourage poor parents to give up their children."[2]

SOCIAL SIGNIFICANCE OF ADOPTION

Turning from the legal to the social significance of adoption, let me quote Arnold Gesell, M.D., Director of the Yale Psychoclinic of Yale University who says: "Child adoption is scarcely less significant for society than marriage itself. The law expresses the full seriousness of the whole situation when it solemnly declares that 'the adopted child shall be as though born in wedlock.' "[3]

"Adoption is at once a social expedient and a social asset. Like education it must be adapted to each individual situation if it is to realize the best results. Purely from the standpoint of social economy, if for no other reason, this asset should be constructively conserved. The combined critical judgment of the social investigator, the court, the physician and the mental examiner should enter into the regulation of adoption."[4]

SIZE OF THE PROBLEM

The size of the problem still further emphasizes its importance. On this point Dr. Gesell says: "Approximately a quarter of a million children deprived of parental care are at this moment under guardianship of public and private child-caring agencies in the United States. There is a constant turnover which greatly augments these figures. Pennsylvania, through some 200 child-caring agencies, annually cares for 25,000 children; Massachusetts, with about 75 agencies, cares for some 15,000 children; New York, with about 200 agencies, cares for 40,000 children. Each year, for the country as a whole probably over 50,000 infants are born out of wedlock. Although large numbers of these children are not available for adoption, because of the existence of family ties which should be preserved or for other reasons, yet in planning for the future of many of them the possibility of adoption is an important factor to be considered.

"In the interests of parents and child alike, purely impulsive adoption should be discouraged and the whole procedure should be surrounded with clinical and supervisory safeguards."[5]

STUDIES OF THE PROBLEM OF ADOPTION

Studies of adoption in Pennsylvania, Illinois and Massachusetts have been made recently. Will you, not only as physicians close to the problem of adoption, but as citizens responsible for the community's welfare, consider some of the findings of the Massachusetts Study?[6] I completed in 1927 a piece of research which established the fact that more than 1000 individuals—the majority of them minors—are being adopted each year in this State. A group of 810 individuals was taken as the basis of study. It was found that approximately 60% of these were illegitimate, 37% legitimate, 2% of undetermined legitimacy. Correlation of legitimacy and age proved correct our guess that it is the illegitimate child who is most often adopted as a young baby and by persons unrelated to him. Twenty-six per cent. of the illegitimate, 10% of the legitimate children were

under a year at the time of the decree. This is but one of the numerous facts which indicate the haste with which the fate of the illegitimate child is so often decided. Approximately two-thirds of the minors were adopted without the assistance of any social agency. In other words, more of these adoptions were put through by persons outside the field of social work than within it. Clergymen, lawyers, employers, nurses, physicians, physicians' wives, women "wanting to do some good"—these and others were responsible for the permanent legal placement of these children. Many of these persons were skilled in their own profession but entirely without knowledge, training or experience in the field of child placing. This indicates that a large amount of social diagnosis and social surgery is being done by those who do not qualify as social practitioners.

The study brought out another fact which indicates the haste with which the fate of the illegitimate child is decided. One hundred children—approximately one-eighth of those studied—were legally surrendered for the purpose of adoption to incorporated social agencies. The surrender papers in two instances were signed the day of the child's birth, in 25 instances when the child was 14 days or less old. Only one of the children surrendered when less than six months of age was legitimate. This means two things: *first,* not a few very young babies are being deprived of their mother's care and feeding; *second,* mothers still in a weakened condition, bewildered and fearful of disgrace following illegitimate childbirth are being allowed—sometimes forced—by relatives and others to make permanent decisions of momentous importance. The unfairness to mother and child and the unsoundness of allowing a woman to come to so important a decision before she has returned to normal health is apparent. The facts show that tragic mistakes are made at this time. The doctor is in a peculiarly favorable position to protect the mother from being forced into making a premature decision. By calling upon the social worker early he can secure the assistance of a trained person acquainted with the resources of the community who can help the mother to arrive at a decision based upon consideration of all the facts in her social situation.

The Massachusetts Study makes it evident that many persons from various walks of life, motivated by different reasons, are bringing adoption petitions to the court. The result is that petitions for good, bad, and indifferent adoptions are being filed with the court, upon which rests the serious and final responsibility of granting or denying them and through this act possibly making or marring the lives of helpless children. The court must have some means of sifting the wheat from the chaff.

SECURING AND PLACING A CHILD FOR ADOPTION THE RESPONSIBILITY OF THE CHILD WELFARE WORKER

The difficulty seems to lie in lack of appreciation of the fact that adoption is a most complicated child-welfare problem and not merely a small part of the business of crowded courts whose primary concern is far removed from this problem. Once it is recognized that there is a social problem behind each adoption petition and that therefore it is not the occasional, but every case, concerning which the court needs full information, the number of unsuitable adoptions will decrease. A way will be found to secure the facts for the courts.

The outstanding conclusion from my research is the great need of thorough investigation of the social facts which bear upon every adoption petition filed. If, then, recommendations based upon the Massachusetts Study are carried out the judge of each probate court will be supplied with the social as well as the legal facts in every case of adoption. This will undoubtedly mean that many an unsuitable decree will not be signed. But the most favorable time to prevent unsuitable adoption is before—sometimes long before—the child is separated from his own people. It is the judge who has the final authority, but it may well be argued that it is the physician who wields the greatest influence in this matter of adoption. He is brought into the problem whether he wishes it or not by the patient who is illegitimately pregnant and desperately trying to keep her plight from becoming known; by the married couple who wish to conceal their pre-nuptial sex relations; by the legitimate father of a motherless baby; or by others who wish to give away a child and also by those who wish to find a child for adoption. The physician's early closeness to the problem is a recognized and accepted fact. The point which is frequently overlooked is that in asking the doctor of medicine to place or to secure a child for adoption, one is asking him to do the task of an expert in the field of child welfare. This is short-sighted and unfair to him and to all concerned. His training has been along other lines. Moreover, in these days of specialization he may have a very superficial knowledge of the lives and character of his patients. The trained and experienced social worker should be expected to carry the social end, the physician the medical end of the burden. If the physician makes the exhaustive inquiry into health conditions and developmental potentialities of the child, as recommended by Dr. Gesell in his writings[7] on safeguarding adoption, in order to decide whether this human stock is suitable for transplanting, and thorough inquiry into the physical condition and mental make-up of the prospective adoptive parents, he has done his part—that very important part which he alone is competent to

do. The social worker should be expected by the physician to make a thorough inquiry into the social situation of the child's natural family to learn whether he should be permanently separated from his own blood or whether some other plan is wisest for all concerned. The social worker should also be expected to make such inquiry as will determine not only the ability of the prospective adoptive parents to provide financially and educationally for the child but to determine whether they are otherwise fitted to be entrusted with a child's life. Says Dr. Gesell, "When the motives for adoption are basically wholesome, adoptions have a way of working out to a happy issue. Good judgment and skill of management are valuable assets in rearing a child, but the governing factors are the emotions, the ideals and the subconscious desires of the parents. In the long run the success of adoption hinges on the fundamental attitude and the fundamental philosophy of the foster parents. This is one reason why happy adoptions are to be found at every social level where health of mind is characteristic of the foster parents."[8]

This hospital is fortunate in that its maternity department is equipped with social service. It therefore has an opportunity to prevent many an unsuitable adoption and to safeguard others. The physicians burdened with the heavy responsibilities of their medical duties may, if they choose, spare themselves the added responsibilities incidental to the social situation which exists in each case—private as well as house—by calling upon social service which, like the x-ray and the laboratory, is a tool provided for their use.

REFERENCES

1 Adoption Laws in the United States, U. S. Children's Bureau, 1925, pp. 3 and 4.
2 Ibid., p. 4.
3 Arnold Gesell, M.D.: "Reducing the Risks of Child Adoption, Bulletin, Child Welfare League of America, May 15, 1927.
4 Arnold Gesell, M.D.: "Psychoclinical Guidance in Child Adoption," published by U. S. Children's Bureau, p. 12.
5 Arnold Gesell, M.D.: "Psychoclinical Guidance in Child Adoption," published by U. S. Children's Bureau, 1926, p. 1.
6 Ida R. Parker: "Fit and Proper"?—A Study of Legal Adoption in Massachusetts, 1927.
7 Arnold Gesell, M.D.: "Psychoclinical Guidance in Child Adoption," published by U. S. Children's Bureau, 1926.
8 Arnold Gesell, M.D.: "Reducing the Risks of Child Adoption, Bulletin, Child Welfare League of America, May 15, 1927.

MAIL ORDER SPECTACLE QUACKS EXPOSED

The eyesight of thousands of persons is being jeopardized by spectacles sold through newspaper and magazine advertising by unscrupulous mail order houses, according to the National Society for the Prevention of Blindness, which brands the operations of these firms as "both a fraud and a menace." This warning has been sent to publishers throughout the United States in a special bulletin of the National Better Business Bureau. In the same bulletin, the Society also terms as "quackeries" the mail order course in eye exercises which advertise a relief from eye strain and defective vision, without a thorough examination.

"It is impossible for glasses to be properly fitted by mail, and in most cases attempts to do so will result in harm to the eyes of the wearers," says the Society. "These mail order houses are selling glasses without asking for any symptoms, without testing the vision of the prospective purchaser, and without even an inquiry as to the condition of health of the eyes. These optical quacks ask merely: 'How old are you?' 'How many years have you worn glasses, if any?' and 'What is the shape of your face—round or slender?' Upon this information they offer to fit any person with glasses, promising 'the most perfect vision of any lenses you can get.' 'These tsplendid glasses,' their circulars promise, will enable anyone to read the smallest print, thread the finest needle, see far or near, and will prevent eye strain or headache.'

"Investigation has shown that the glasses which are actually sent are simply a fair grade of magnifying glasses mounted in an extremely poor grade of frame. These are advertised as 'scientifically ground and curved lenses.' The glasses do nothing that the exploiters claim for them—they do not often relieve eye strain, they do not fit any eyes, except by mere chance. The National Society for the Prevention of Blindness feels that this is a dangerous situation. It has become a well established fact that fitting of glasses where needed requires an examination and eye test by a qualified specialist, and special glasses for each case made upon prescription.

"Probably the most serious aspect of the question, from the standpoint of the prevention of blindness, is the missed medical problem. Many disease conditions which finally result in partial or complete blindness first produce disturbances of vision which are only temporarily corrected, hence concealed, by lenses. In the absence of a complete eye examination when glasses are prescribed, the underlying evidence of eye disease, frequently an indication of disease of the general system, may be overlooked until it is too late to prevent blindness and widespread physical disaster."

Concerning the mail order courses in "eye exercises," the Society says: "The Slogan, 'Throw Away Your Glasses,' with its many variations, is used to advertise a relief from eye strain and defective vision which is not borne out by the findings of medical science. It is true that ophthalmologists do, under certain conditions, prescribe for their patients certain eye exercises, chiefly of the muscles performing movements of the eye ball and aiming to bring muscles into more complete co-ördination. It is also true that the medical profession agrees generally that such eye muscle exercises should be attempted only under careful and adequate supervision. Such muscle training should only be prescribed after a complete eye examination has been made, supplemented frequently with a general physical examination and laboratory tests. Wisely applied, muscle tests may relieve certain cases of eyestrain where glasses are not really indicated; but to 'Throw away your glasses' without examination and competent advice may result in serious eye strain and may even cause profound disturbances of the nervous system."
—*The National Society for the Prevention of Blindness, 370 Seventh Avenue, New York City.*

VERMONT STATE MEDICAL SOCIETY

THE PLACE OF THE GENERAL PRACTITIONER IN A GENERAL HYGIENE MOVEMENT*

BY BRONSON CROTHERS, M.D.†

NO one in these days can fail to realize that the general practitioner of medicine occupies a delightful, but rather trying position in the medical world. Everyone who has special information, new ideas or novel technical resources is trying to persuade the general practitioner to adopt some intellectual orphan and make it his own. The prospective foster parent has learned caution by now. He knows that a lot of new ideas turn out badly, and that adoption is a risky and tedious business. He also recognizes that his intellectual family is rather numerous and that birth control in this matter is not feasible. What then is he to think when he is offered, not a single idea, but the opportunity to add the care of the whole of the mental life of his patients to his present responsibility for the supervision of their physical ailments? Yet, the appeal of psychiatrists practically amounts to this. I have been watching the campaign for mental hygiene for some years, and have gradually come to conclusions satisfactory to myself. Since these conclusions satisfy neither any propaganda committee nor any reactionary, I have hopes that they may be fairly sound.

I believe fully that modern psychologists and psychiatrists have opened trails of the greatest importance in child guidance. I am not nearly so sure that they have not opened up many of these trails to general traffic, before they quite know where they are going. For instance, it is now the custom in certain psychiatric circles to assume that technical training is necessary before conduct can be considered at all. The mental testing literature is full of statements, tending to show that figures are better than experience and so on. My plea to you is to realize that an astonishingly interesting mass of literature is available. Fortunately, the National Committee for Mental Hygiene and various State Committees have on file a number of documents, which they yearn to distribute.

On reading this preliminary literature, I gained the impression that there was something rather mystical about psychiatry, and that psychiatrists were surrounded by technicians, who were extremely useful and without whom nothing could be done. It is fair to report after further study, that the first impression was a false one. I have come to believe that the good psychiatrist is usually a singularly matter-of-fact person. In fact, that seems to me one of the difficulties. He regards human error exactly as the rest of us regard the common cold, as a routine matter, bothering everyone, but usually manageable. His air of toleration towards misconduct is of course only a part of his technique, just as the rest of us hardly raise an eyebrow when the spirochaete or the gonococcus are found at work.

He surrounds himself with technicians to be sure. He has his mental testers, his social workers and his serologists, but he considers their findings at their true value. I have been increasingly struck by the fact that the working psychiatrist is near the top of the medical tree and that he comes nearer than most of us to practicing the whole of medicine.

These working psychiatrists, however, are being served by a less judicious and, I believe, by a less trustworthy group, who are attempting to "sell" psychiatry to doctors, and to the public at large. Naturally, many of the salesmen have no credentials, and some are selling fraudulent or even pirated goods. Never did the doctrine of caveat emptor apply more fully.

If anyone wishes to study psychiatry adequately, a vividly interesting and highly rewarding period of several years lies before him. To those with sufficient time and energy, no field offers greater rewards. To the new generation of medical students, insight into this field will be given by an increasing number of medical schools.

What interests us today, however, is the place of the busy practitioner of medicine, who cannot abandon physical medicine while he gains new knowledge. The approach to the new field is beset with pitfalls.

If the newcomer believes that a number of bits of technique plus a few well-established formulae for interpretation of the results will help much, he is doomed to disappointment. On the other hand, if he is willing to consider human behavior as carefully as he considers convential signs and symptoms of somatic disease, he will be able to add greatly to his usefulness. In theory, the general practitioner already does this sort of thing; practically, he does not. In watching a busy medical clinic, I have often been struck with the total disregard of behavior. It is not too much to say that most doctors are best pleased when no behavior whatever is evident during their contact with a child.

My idea of a proper procedure is as follows. In the history of a patient should appear a

*Read at the Annual Meeting of the Vermont State Medical Society at Burlington, October 12, 1928.

†For record and address of author see "This Week's Issue," page 900.

record of mental assets and of emotional and intellectual progress, and a statement as to the attitude of the parents towards the child. At a minimum, the record ought to include dates of sitting up, walking and talking, school progress and a general impression as to the personality of the child. This can be entirely untechnical. The only danger is that psychiatric words may creep in before the recorder learns to use them properly. This very simple procedure will often suggest the presence of obvious difficulties.

The chief question about parental attitude seems to me the general one as to whether they recognize and accept the fact that they should desire the child to grow up, regardless of the fact that such growing up may lead to difficulties of management or to independence of the family. This information is readily obtained if it is looked for. On the whole, the over-careful parent reveals herself or himself quite inevitably to an inquisitive doctor. It is also not difficult to guess whether the parents play favorites. All this information can be used to support various elaborate psychiatric hypotheses, but it can be used as well to support common sense advice.

Another point is that almost any child, over two or three years old, is worth talking to now and then. The mere effort to do so may reveal difficulties which help explain trouble in school or at home. In some ways, it is of advantage to try out mental tests, such as the Binet tests, even though one does not do them frequently. In this way, the doctor is forced to converse with the child.

The habit of collecting information about behavior and habits will of course lead to a certain amount of interest in such common things as enuresis and masturbation.

I was much struck by a closely printed sheet of directions which we regularly distributed at the Children's Hospital to parents consulting doctors about enuresis. Every direction was to the mother; she was to this, not do that, and by no means to forget the other. The child was merely a lay figure, or off-stage completely. Take it by and large, the directions conveyed the impression that the mother, for some reason, needed to be bored, bullied and punished. Looking at this rather venerable document, after exposure to psychiatric influence for a few months, I decided to get along without it and started treating children with enuresis, on the theory that any boredom involved should fall upon them. It is not particularly difficult to arrange a program which lets the mother off and imposes drudgery on the child. The delightful part of solving a problem in this way is that you may, quite unexpectedly, discover that you are avoiding a mother fixation, sidestepping an impending inferiority complex and otherwise practicing rather formidable psychiatry. I have a feeling that common sense, however much it is the fashion to deprecate it, often brings one to the spot which is reached by elaborate technique, to the chagrin of the technician. However that may be, it is quite clear that working with the child is interesting and effective and that a lot of waste effort is thus avoided.

In much the same way, a tremendous amount of emotion is spent on considering ways and means of managing the sex development of children. On the one hand, there are those who see formidable dangers in thumbsucking and regard the child as a polymorph pervert, or what not, as he develops his personality. On the other wing, are those who either ignore or conceal the whole sex life of the child and of the adolescent.

In determining a point of view about this matter, it is necessary to realize that in order for advice to be useful, the giver and the receiver of the advice must be talking about the same thing. If a parent regards the touching of any part of the body between the navel and the knees as masturbation, while the doctor regards orgasm, or something like it, as an essential part of the procedure, nobody gets anywhere. As a general thing it is most illuminating to get at facts. Once the emotion is either removed or clearly evident, and once everybody is talking about the same thing, all sorts of difficulties disappear. This is not the place to discuss sex hygiene in detail, but it is not only good psychiatry to discuss problems of this sort frankly; it is perfectly good common sense.

In much the same way, it is possible to attack all sorts of difficulties without very elaborate formulae. The mere investigation often clears up apparently complicated problems. In other cases, a casual optimism is completely upset and a serious problem requiring expert guidance is revealed. The general practitioner, who is willing to regard with curiosity the mental life of his patients, will soon find a way to develop those technical resources, which he needs. The real assets of the psychiatrist, which are his for the asking, are curiosity, persistence, tolerance, and optimism. The auxiliary technicians with their mental tests, psychiatric vocabulary, serological studies and the rest, can be called on for help.

If a general practitioner keeps steadily in mind that the progress of psychiatry depends primarily upon wisdom and only secondarily upon technique, he can pick his way safely through the confused literature. If he further accepts the idea that much of the mental hygiene program merely emphasizes the necessity of persistent interest in education, he is prepared to discuss problems without any panicky feeling that a mis-step may land his patient in an institution for mental diseases.

Frequent statements from propagandists first state the number of inmates of institutions, then go on to say that mental disease is preventable, then conclude with an appeal to doctors to en-

list in the campaign. Personally, an appeal of this sort leaves me cold. I believe it bewilders the man who is asked to help. I believe that, without the slightest reference to mental disease, it is possible to practice a type of medicine in which attention to bodily ailments is accompanied by persistent interest in the intellect, the emotions and the behavior of the patients treated.

It goes without saying that I present no plan by which anyone can master psychiatry in twenty minutes. I have simply attempted to point out that the new psychiatric technique should be acquired and used only by wise, experienced and tolerant doctors. Such doctors should be no more afraid of the technique of the psychiatric clinic than they are of the technique of the laboratory.

OBITUARIES

GEORGE BURTON FRENCH, M.D.

By the death at Concord, Vt., March 9, 1929 of Dr. George Burton French, another veteran is gone from the thinning ranks of the Country Physician. The end came as a release from five years of suffering. Dr. French was born at Hardwick, Vt., January 24, 1858, educated in the public schools and academy. After teaching for several years he studied medicine with Dr. S. G. Soules of Hardwick, Vt. and graduated from the Eclectic Medical College of New York City, in the class of 1883. He practiced two years in Waterville, Vt., and four years in Greensboro, Vt., then locating in Concord, Vt., in 1890, where the rest of his life was spent.

It is doubtful if any other two physicians in the State covered more territory than fell to him and his associate Dr. R. T. Johnson, not only over the hills of Concord, Victory and Grandby did their long rides extend but over large portions of Waterford, Kirby and St. Johnsbury.

He was a member of the Northeastern Medical Society, of the local Masonic bodies, being at one time Grand Master of Moose River Lodge, No. 82, a member of Haswell Chapter No. II Royal Arch Masons and of Palestine Commandery No. 5 of St. Johnsbury, Vt.

He was greatly interested in public affairs, and an earnest worker for the best good of the community, held most of the town offices and represented Concord in the Legislature of 1908.

He is survived by his wife formerly Alice E. Ford, of Hardwick and one son Harold Ford French of the State Chamber of Commerce.

RUFUS ANDERSON KINGMAN, M.D.

1859—1929

A Retired Boston Surgeon

Dr. Kingman died at Wallingford, Connecticut, March 28 in his seventieth year. His father was a Boston merchant noted for his charities.

Dr. Kingman graduated from the Harvard Medical School in 1880. He studied two years in Europe after a City Hospital internship.

He served on the staff of the City and St. Elizabeth Hospitals—Chief of Staff of the latter for many years. The sister nurses loved him and remembered him every year.

He was a skillful operator, cool and resourceful. Countless suffering women blessed him for restored health.

He had a large consulting practice and did notable work in the Grenfell Mission.

On his first visit to Boston, his friend, Dr. Grenfell, was his guest. Dr. Kingman was interested in other scientific subjects. He travelled extensively.

His home in Wallingford, presided over by his gracious wife, was always open to his friends.

His wife, daughter of Mr. Burns, formerly Naturalist to the Canadian Government, survives him with two children, John M. of Boston, Mrs. John M. MacLeod of Ohio, (a brother, Abner Kingman of Montreal), and six grand-children.

Enos H. Bigelow, M.D.

JOHN T. RUDDEN, M.D.

Dr. John T. Rudden died, suddenly, at his home in Bellows Falls, Vermont on Sunday March 10 from myocarditis.

Dr. Rudden was born at Lawrence, Mass., May 10, 1866, the son of Patrick and Mary (Brady) Rudden. He attended Exeter Academy and was graduated from the University of Vermont Medical College in 1892. After serving his internship at Long Island City Hospital, Brooklyn, New York, he located in Bellows Falls, Vermont where he served the people of that town, as a general practitioner, until the time of his death.

Dr. Rudden was prominent as a doctor, as a citizen, and a leader in St. Charles Church and its affiliated organizations. He was a trustee of the Rockingham Public Library since 1900, was health officer for a number of years, and has been active in numerous public gatherings. He was a charter member of St. Charles Council, Knights of Columbus, and its first Grand Knight. In the state organization he has been district and state deputy, and, at the time of his death, was Master of the Fourth Degree.

Dr. Rudden's death, which came to him while still on duty, is looked upon as a personal sorrow by many to whom he has endeared himself through thirty-seven years of faithful service as medical advisor, confidant, and friend.

He is survived by two daughters, Miss Regis Rudden of Bellows Falls, Vermont and Miss Barbara Rudden of Detroit, Mich.

JACOB J. ROSS, M.D.

Dr. Jacob J. Ross, known throughout Vermont as a skillful physician died at 8:45 p. m. April 9 in Porter Memorial Hospital. He was born in Huntington, July 14, 1877, the only son of Austin H. and Catherine C. Johnson Ross. After receiving his early education in Huntington, he entered Montpelier Seminary.

In 1904 he was graduated from the agricultural department of the University of Vermont. Dr. Ross obtained his medical degree in 1908, also at the University, then serving as interne at the Mary Fletcher

Hospital. In 1909 he married Miss H. Elizabeth Holmes of Charlotte. They lived in Richmond until 1913.

During the next two years Dr. Ross was on the Syracuse University medical staff. He went to Boys' Hospital at Berry School, Rome, Ga., and was there two years. It was in 1917 that he came to Middlebury, taking charge of the department of physical education at Middlebury College.

When this country entered the War, he became a Lieutenant in the Seventh Aero Squadron as medical officer. He returned with the rank of Captain. He has since been promoted to a Reserve Major. Dr. Ross was a Mason, Rotarian, Legionnaire, member of the Chamber of Commerce and Congregational Church.

Besides his wife, he leaves four children, Katherine, Austin H., Charles R. and Helen Russell Ross. Funeral services were held Thursday afternoon at 2:30 o'clock at his late home.

MISCELLANY

SOCIETY NOTES

The second series of County Medical Meetings given jointly by the Vermont State Medical Society and the Vermont State Board of Health were held during the week of March 25th at Brattleboro, Windsor, St. Johnsbury, Morrisville and Montpelier, on successive days. As in the previous series these meetings were well attended and a general desire was expressed that this be made an annual feature of the activities of the State Society.

BURLINGTON AND CHITTENDEN COUNTY CLINICAL SOCIETY

The members of the Burlington and Chittenden County Clinical Society are rejoicing over the restoration to active duty of our two Senior members. Dr. John B. Wheeler, who sustained a fractured hip on January 9 has made an excellent recovery. He is in daily attendance at the Hospitals and on April 8 took up his scalpel. In January Dr. P. E. McSweeney was stricken with otitis media and mastoiditis. Following operation erysipelas developed. Nevertheless he has made a very gratifying comeback and is once more operating.

Three of Burlington's physicians are to study in Vienna this Summer. Dr. W. T. Rees of the Department of Surgery of the University has already left. Dr. C. A. Ravey and Dr. E. W. Pike follow later in the month.

VERMONT DEPARTMENT OF PUBLIC HEALTH, MARCH, 1929

Reports of communicable diseases: chickenpox 41, diphtheria 11, German measles 4, measles 154, mumps 274, scarlet fever 74, smallpox 26, tuberculosis 17, whooping cough 162.

The Laboratory of Hygiene made 1,368 examinations during the month classified as follows:

Examinations

For diphtheria bacilli	174
For Widal reaction of typhoid fever	21
For malarial parasites	0
For tubercule bacilli	251
For evidence of syphilis	372
For gonococci in pus	91
For blood for contagious abortion in cattle	116
Of water, chemical and bacteriological	41
Of water, bacteriological	114
Of milk, market	70
Of milk, submitted for chemical only	2
Of milk, submitted for microscopical only	27
Of foods	17
Of drugs	1
For the courts, autopsies	2
For the courts, miscellaneous	15
Autopsies to complete death returns	0
Miscellaneous examinations	54

The Division of Venereal Diseases submits the following report: 17 cases of gonorrhea and 51 cases of syphilis. One case of gonorrhea reporting for treatment, 5 cases of syphilis reporting for treatment, of which two were for intravenous treatment. 168 gonorrhea outfits were distributed and 508 Wassermann outfits.

Thirty patients were visited by the nurses in the Poliomyelitis After-care Division, twenty-five home visits made, four new pieces of apparatus applied, four pieces of apparatus altered and four orthopedic corrections made to shoes. Seven patients were discharged from hospitals.

The Maternity and Infancy Division has conducted classes in infant hygiene in seven towns of the state. Two one-hour period talks were given at the Castleton Normal School to about 100 girls. Talks have also been given in seven other towns to Women's Clubs, Home Bureaus and Community Clubs.

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15171

FOUL SPUTA AFTER TONSILLECTOMY

MEDICAL DEPARTMENT

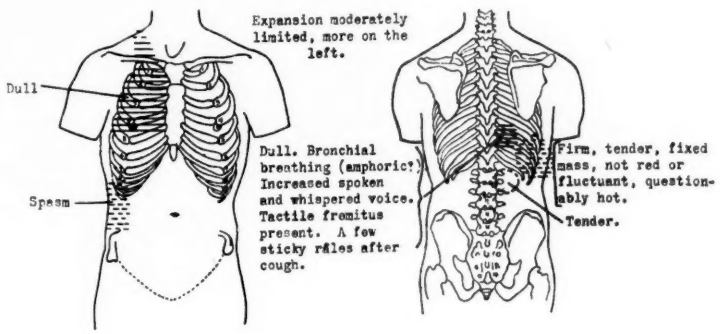
A married American woman thirty-two years old entered May 21 complaining of pain in the right chest of two weeks' duration.

Nine weeks before admission she had an abscess of the left tonsil, opened after a week by her physician with the recovery of two tablespoonfuls of pus. The following day she noticed a painful spot at the angle of the left jaw. After a week of poulticing this area became hard. It was opened under ether. A quantity of thick green pus gushed out. There was rather free drainage afterwards. She went home two hours after the ether administration and went to bed. The following day she had severe sharp cutting pain in the right side of the chest with each breath and had unproductive cough which kept her awake at night. The side was strapped with relief. At the end of the week when the strapping was removed she was free from pain. Five weeks before admission she had paroxysmal cough which gave occasional stabbing pain in the right chest and was worse toward evening and productive of considerable yellowish thick bitter sputum, so foul smelling that it was very offensive to other people. In a week the cough again became unproductive for five or six days, followed by a return of the paroxysms and the foul sputum. She began to have night sweats, but on the whole felt fairly well until two weeks before admission. Then she began to have gnawing pain in the right chest at about the sixth to the eighth rib in the right axillary line, worse when she was on her feet, relieved somewhat by rest in bed and almost entirely by aspirin. At about the same time she noticed a swelling in this region as well as a stiffness in the side. The pain and stiffness had steadily increased to admission. A week before admission she had a two-hour fit of coughing in which she raised six lumps of bloody, very foul smelling sputum which made her vomit. She had an X-ray examination. A lung specialist interpreted the plates as showing the lungs normal except for a little "blurring" at the right base, and said that under rest, fresh air and good food the condition ought to clear up in three weeks. Four days before admission she went back to her family physician because of continued pain in the right side. He again strapped her chest. That night she nearly smothered. When she pulled off the strapping she immediately felt relieved and went to sleep. Two days before admission an internist advised her to come to this hospital. The morning of admission she had an irritation in the throat which caused considerable coughing.

Her family history is unimportant.

She had scarlet fever, measles, whooping cough, pneumonia and malaria in childhood and one or two attacks of grippe later. Her bowels had been constipated for fifteen years. Twice two years before admission she passed reddish urine without other symptoms.

Clinical examination showed a fairly well developed and nourished woman with unproductive cough accompanied by pain in the right side. She had discomfort when anything touched her right back. Skin hot. Slightly injected tonsillar tissue on both sides. Small glands at the angles of the jaw. Lung signs as shown in the diagram. Heart normal in size and position. A soft systolic murmur at the apex. Spasm in the right flank and abdomen. Sharp costovertebral tenderness on the right, perhaps part of the general tenderness about the swelling over the chest wall. Slightly tender external hemorrhoids. Cervix soft, old lacerations, fundus not felt. Extremities, pupils and reflexes normal.


Expansion moderately limited, more on the left.
Dull
Spasm
Dull. Bronchial breathing (amphoric?) Increased spoken and whispered voice. Tactile fremitus present. A few sticky râles after cough.
Firm, tender, fixed mass, not red or fluctuant, questionably hot.
Tender.

Before operation amount of urine not recorded, specific gravity 1.012, findings negative, leukocytes 17,000 to 21,000, polymorphonuclears 82 per cent, hemoglobin 70 per cent, reds 4,100,000 to 4,300,000, smear normal. Hinton negative. Sputum: Gram-negative bacilli; rare cocci and Gram-positive diplococci. Fontana stain showed one spirochete in five fields.

X-ray examination showed the diaphragm high on both sides. It moved normally with respiration. The hilus shadows were considerably increased in size and density. Calcified glands were present. Running outward across the lung fields in the region of the right interlobar septum were dense narrow lines. The apices and periphery of the lungs were clear.

Before operation temperature 98.7° to 102.6°, pulse 89 to 120, respirations normal.

May 25 operation was done. The patient made a good postoperative recovery. There was a good deal of drainage. May 26 the temperature went up to 102° but came down again to 100.5°. There was no cough. May 27 just after being transferred from one ward to another the patient suddenly began to cough and raised two tablespoonfuls of bloody mucus. The cough then stopped as suddenly as it had begun. May 29 after change to another ward she again had a short attack of cough with raising of sputum. In the evening the temperature rose to 102.5°. May 30 the temperature was normal in the morning, 102.5° in the afternoon. May 31 a portable X-ray plate showed the right diaphragm much higher than usual. There was no fluoroscopic note as to excursion. There was considerable increased density in the region of the right lung root and descending bronchus. The chest was otherwise clear. May 31 the temperature was normal all day. June 1 and 2 there was again evening rise. She had distressing diarrhea. The morning of June 4 she suddenly felt a little pain in the left calf and found that the left leg from the thigh down was blue and slightly swollen. Orders were given to elevate the leg on pillows. A few minutes later she felt a smothering sensation and was found sitting upright, cyanotic, breathing fast and deeply. She complained of no chest pain at any time. The house officer found that the leg although still slightly swollen was normal in color. Two hours later the patient died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

In the history of the present illness we look to see how much of an interval there was between the disappearance of pain and its recurrence. The remission was apparently very short, an interval of a week or so.

I think the lung specialist was a rash man to make that prognosis on the X-rays.

Up to the physical examination everything seems to go perfectly straight. We have in the first place abscess of a tonsil as evidence of general septicemia. (I believe that suppuration goes to the tonsil from the blood and not the other way around.) Then we have a similar suppuration in the neck and again in the lung,—clear evidence of the latter, it seems to me, in the characteristics of the sputum. With that there was a great deal of pain near the pleura. The suppurative process had now involved it so as to give her pain. I do not see any reason to doubt the evidence before us that she had abscess of the lung. We may call it abscess or gangrene—a difference only in smell and organism, essentially the same process. I do not see up to this point any evidence of anything else.

NOTES ON THE PHYSICAL EXAMINATION

The diagram shows signs of partial solidification around one or more abscess cavities. We do not often get the signs of abscess itself. We get signs of thickening of the tissues around it.

We ask ourselves whether this disease has not involved the chest wall as well as the lung itself. I suppose that mass to be a cellulitis around inflammation that has worked through the lung to the pleura and through the pleura to the chest wall. Of course if there had been no swelling over the chest wall we might have been thinking of a perinephritic abscess. That might well be a staphylococcus inflammation. One of the favorite places of that organism is the kidney, whence it penetrates to the perinephritic tissues and through this space that shows the tenderness below the ribs. The difficulty with that idea is that we apparently have signs above as well as below the ribs.

None of the sputum examination, I take it, is of any importance in diagnosis or prognosis.

From these X-ray plates I should say that perinephritic abscess is excluded, for as I understand it, when we have pus close under the diaphragm we do not have free mobility of the diaphragm. This X-ray certainly shows something that does not look right, but does not certainly correspond to anything that we are looking for. I do not believe anybody could suspect lung abscess from what I see there. Certainly I could not. "The apices and periphery of the lungs were clear." Apparently they did not see anything to back up what we have been getting from the clinical side.

Miss Painter: The report says "The identity of the plate is not certain, and it was rather thin. The examination should be repeated."

Dr. Cabot: Then they did not commit themselves any more definitely than you and I have so far. Nevertheless they proceeded to operation. I do not believe they proceeded on the evidence of those plates. In other words they are saying, "We have basis enough in the clinical data, in what we feel on the chest wall and

in what we believe is inside." Far be it from me to speculate confidently on the processes of a surgeon's mind; but I suppose he might say, "There is disease on the outside there which we can do something for. It may be nothing but a boil; but we will open it anyway. Then we may go on from that point guided by what we find". They are safe in beginning the operation on the basis of what is on the outside. What is inside they will find out when they get there.

What ought to be the pre-operative diagnosis? It ought to be lung abscess with involvement of the pleura and of the chest wall, and operation on that basis.

But in fact their pre-operative diagnosis is entirely different. Would you like to make any other diagnosis?

A STUDENT: Empyema?

ANOTHER STUDENT: Subdiaphragmatic abscess?

DR. CABOT: Yes, that was their diagnosis; and I never should have guessed it. They may have had a good deal of evidence that you and I never heard about.

PRE-OPERATIVE DIAGNOSIS

Subdiaphragmatic abscess.

OPERATION

Novocain and ethylene. The region of the eleventh rib was incised. Pus was obtained of a colon odor, foul, and more or less characteristic of lung abscess. Further exploration at the depths of the superficial abscess showed an eroded rib in the midposterior axillary line, apparently the eleventh rib. This eroded area, consisting of an inch and a half of rib, was resected. The hole was then followed through the inner wall and through the diaphragm to the liver and a tube was inserted.

BACTERIOLOGIC REPORT

Culture of pus from subdiaphragmatic abscess showed no growth.

FURTHER DISCUSSION

DR. CABOT: They think it is a lung abscess, apparently.

I understand also that a hole in the diaphragm was found. They did not make it.

She did have a subdiaphragmatic abscess or a hepatic abscess and perhaps a lung abscess, but that is not proved, although from the nature of the pus they suspected it.

I am going to stick to the diagnosis of lung abscess unless we get further evidence. We have proof that there is also something below the diaphragm.

I should suppose from the portable X-ray plate that this diaphragm was higher than usual. We do not know whether the diaphragm moved or not.

The condition described just before death is a classical picture of pulmonary embolism.

DIFFERENTIAL DIAGNOSIS

It seems to me that we have perfectly clear evidence of lung abscess, one or more, very possibly so placed that they might have been called bronchiectatic. That is merely a difference of words. From the operative note I should say that this suppurative process worked through the pleura and eroded the rib. Then another suppuration worked through the diaphragm upward, not downward. I may be wrong as to the direction, but I think it corresponds to a separate perihepatic (subdiaphragmatic) abscess, presumably with abscess in the liver, from what they say in the operative note. What likelihood is there that this started in the liver and perforated the diaphragm into the lungs? This route—liver to lung—is the commonest so far as I know. I have seen it a good many times in amebic abscesses of the liver starting in the intestine and perforating into the lung. That is common. I remember only a few times when it has gone in the other direction. So far as my general experience is concerned I should suppose this started in the liver. The fact that there was pain in the chest high up does not prove that it was not also in the liver, silent and symptomless, before it perforated the diaphragm and got into the lung. I cannot decide in which direction it went. The clinical history sounds as if it went from the lung to the liver. Experience leads me to believe it went the other way. I am convinced, however, that it involved both.

I see nothing else to discuss except the terminal symptoms—a thrombosis which sounds more like venous than arterial, in the leg and then the detachment of a piece carried to the lung, with a pulmonary embolism.

On the whole the case seems to be clear enough—a case of septicemia with localization in the tonsils carried to the lung, liver, leg and finally an embolus to the vessels in the lung. If it is a staphylococcus process it is quite possible that there are abscesses in the kidney, although the urine does not reveal anything to suggest that. I cannot say anything about that because we have no blood culture. If it is staphylococcus it may be in the heart wall also. We have had a number of cases here with abscess in the heart from staphylococcus poisoning. It does not give any physical signs, but it has to be guessed at from the nature of the infection. We have no brain symptoms to cause us to suspect metastasis to the brain, which is common in abscess of this kind.

I do not see any evidence that there was a mistake in the therapeutics. Any of us would have advised what was done. No one is to blame for the lack of knowledge or for the occurrence of the thing that killed her.

A STUDENT: Were no blood cultures taken?

DR. CABOT: No.

A STUDENT: What do you think about actinomycosis?

DR. CABOT: I do not believe that we shall have another case here this year. The only way to prove actinomycosis is examination of the sputa, and we find no evidence in that. That does not exclude it, of course. I do not know why it might not extend from the lung to the chest wall, although the chest wall is the usual place for it to start.

A STUDENT: What about the diarrhea?

DR. CABOT: I suppose it is what we call a septic diarrhea. People who have septic processes going on in the body are more than usually susceptible to diarrhea without necessarily having anything to show for it in the post mortem examination. It may be an ulcerative colitis. But I should not be at all surprised if the intestine was normal.

A STUDENT: Can you get an embolus in the femoral artery?

DR. CABOT: Yes.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Subdiaphragmatic abscess.
Pulmonary embolism.

DR. RICHARD C. CABOT'S DIAGNOSIS

Septicemia.
Abscess of the liver and the right lung.
Thrombosis, probably venous, in the left leg.
Pulmonary embolism.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Abscess of the liver.
Multiple abscesses of the lower lobe of the right lung.

2. *Secondary or terminal lesions.*

Bronchopneumonia.
Toxic necrosis of the Malpighian corpuscles.
Operation wound, drainage of liver abscess.
Thrombosis in the left iliac vein.
Pulmonary embolism.

DR. TRACY B. MALLORY: The autopsy showed an operation wound in the right back with a rubber drainage tube passing through a small portion of the pleural cavity, which was well walled off by adhesions to the diaphragm, and into the upper surface of the right lobe of the liver, where it was surrounded by a small abscess cavity lined with granulation tissue. There was no general peritonitis, but a slight localized peritonitis was present between the surface of the liver and the diaphragm. Probably before the drainage there had been a fair sized subdiaphragmatic abscess. The right lung contained a large multilocular abscess in the lower lobe which did not communicate through any evident passage with the abscess in the liver. There was a pulmonary embolus which occluded only the left branch of the pulmonary artery. The right remained free. A large thrombus was seen at the left iliac vein, the evident source of the embolus.

There was a moderate degree of chronic cholecystitis. There were no further abscesses found. Cultural studies from the heart's blood showed only a colon bacillus, which in all probability was a post-mortem contamination. The abscess of the lung contained a wide variety of flora, including cocci, various types of bacilli, leptothrix and spirochetes. It was the usual type of diversified flora of lung abscess, the type that we usually see with foreign body inspiration, although we found no evidence of foreign body.

DR. CABOT: What about the relation, if any, between the lung abscess and the liver abscess?

DR. MALLORY: I believe we can do nothing but guess about that. I wish we had a cultural report of the pus from the liver abscess when it was first opened. I think if that had shown the same mixed flora that the lung showed I should feel quite sure that it was secondary.

DR. CABOT: Is it possible that the two came as metastases out of the same infected blood?

DR. MALLORY: The mixed infection of the pulmonary abscess is to my mind strong evidence against its being hematogenous. The bactericidal properties of the blood stream make short work of saprophitic organisms, and infected emboli rarely if ever show more than one organism.

A STUDENT: Was there any involvement of the pleura?

DR. MALLORY: The entire pleural cavity was obliterated by fibrous adhesions which undoubtedly saved her from empyema.

A STUDENT: What is the possibility that the inflammation went through the diaphragm?

DR. MALLORY: That can happen quite easily. We see it not infrequently.

A STUDENT: How long do you think the process had gone on?

DR. MALLORY: I am sure this lung abscess had existed since the beginning of her symptoms at least.

A STUDENT: Was there anything indicating the origin of the septicemia?

DR. MALLORY: No.

A STUDENT: What about that swelling in the side of the chest? Was that an abscess?

DR. MALLORY: That had disappeared. It had been drained.

A STUDENT: Which abscess was that?

DR. MALLORY: The subdiaphragmatic abscess.

A STUDENT: The swelling was above the diaphragm, wasn't it?

DR. MALLORY: Just about at the border of it, I should say.

A STUDENT: Did they go through the lower portion?

DR. MALLORY: They went through the extreme lower posterior portion of the pleural

cavity in getting to it, which was separated from the rest of the cavity by very dense old adhesions.

A STUDENT: What was the relation between the thrombosis and the general process?

DR. MALLORY: I do not know that there was any.

DR. CABOT: It is the kind of case in which we do often get thrombi.

A STUDENT: What was the cause of the thrombus in the iliac vein?

DR. MALLORY: It happens in about five per cent of cases where people are operated upon. They develop a thrombus somehow simply lying in bed, especially if they are septic.

DR. CABOT: Do you want to make any guess as to the organism on the basis of the clinical history, Dr. Mallory? Is it more like streptococcus or staphylococcus? Or is there anything that will guide us?

DR. MALLORY: I hardly think there is.

DR. CABOT: I should say the only important moral in this case is that when people spit foul pus and the X-ray does not show abscess we should make the diagnosis of lung abscess nevertheless. There is no better clinical evidence that I know of. There is nothing any more pathognomonic than foul sputum. It is just about as sure as anything. If you have that it does not make any difference what the X-ray shows or does not show.

A STUDENT: Is there usually a positive blood culture at the time of a tonsillitis or previously?

DR. CABOT: No, not so far as I know. Why then do I believe that tonsillitis comes from the blood? Because of watching these early subjects of disease that Mackenzie was so much interested in. If you see them as a general practitioner, these early subjects, you see them with fever, sometimes chills, leukocytosis and no localization that you can find anywhere. They go to bed and stay in bed with unexplained fever for some time. Then the tonsils begin to get bad. It seems to me unreasonable to suppose that all of that comes from the tonsils originally.

CASE 15172

A DEPRESSION EXPRESSING ITSELF IN LOSS OF APPETITE AND EXTREME EMACIATION

NEUROLOGICAL DEPARTMENT

The patient was a single white American woman of the professional class who entered the hospital because of the loss of fifty-three pounds in weight in four years, associated with growing weakness and amenorrhea. Four years ago she found that she grew fatigued easily, and put herself on a dietary régime which included four day fasts and an interval diet deficient in calories (1000 to 1500 calories). She lost twenty pounds in six months and thought she felt better. She continued to lose weight, and when she entered the hospital she weighed seventy-seven pounds and had no appetite. Her normal weight was 130 to 135 pounds.

The past history shows a nervous breakdown twenty years ago. At this time she was profoundly depressed and had to leave college. For the past twenty years she had done very little up to four years ago.

The man who took this history noticed that the diet of this person seemed to have become an obsession with her, and a psychiatric consultation was requested.

The physical examination showed an alert, intelligent person who was strikingly emaciated. The face, neck and hands were bright red. The skin was very dry and on the hands was cracked. A gastro-intestinal X-ray series was found to be negative. The basal metabolic rate was —1.

The impression was that of malnutrition, and the diagnosis at that time was given as mild anorexia nervosa.

In several interviews with a psychiatrist the following facts were elicited:

Twenty years ago the patient had a very severe depression with suicidal ideas, and left college. She was nursed at home, but remained quite depressed for over a year. Ever since that time she had been regarded by her family as less strong than the others, and no plans were made for a career. Five years ago she became strongly influenced by a friend to go on the following diet:

Diet of patient for nearly four years.

(a) Three weeks on a diet deficient in carbohydrates.
(b) Four day fast.
(c) Three days on a diet of vegetables, salads and milk.

Breakfast:
1 shredded wheat biscuit.
Lettuce.
1 glass of milk.

Luncheon:
Rice.
1 egg.
1 vegetable.

Dinner:
Meat or egg.
Potato.
Alternating with:
Two vegetables.
Salad.

At the end of six months she added to this diet:
An oil dressing on the lettuce and salad.
Butter on the vegetables.
One-half to one glass of milk.

No bread or sweets were ever allowed.

She kept to this diet for three years, and felt that by eating so little her stomach had less to do and therefore her body did not get so tired. Of course she grew gradually very emaciated, and one year ago lost her appetite completely. At this time she felt that she had no right to live

because she was not helping others more and that she should not eat because so many Chinese were starving. The idea of food was very wrong to her because of her own unworthiness. She felt that if she spent less of her mother's money for food her mother would have more pleasures. She also thought that if she could die her mother could travel and enjoy herself. There were however no plans for suicide at this time beyond the fact that she was gradually starving herself.

Discussion

BY WILLIAM J. HERMAN, M.D.

After the psychological basis for her failure to eat was ascertained, it was gradually conveyed to the patient that her illness was a real source of worry to her family and that good health was probably the greatest source of satisfaction that she could give them. Of course this is rather obvious common sense; but it was the type of argument that one could only use if one knew why the patient was not eating.

She was placed on a diet of 3200-3500 calories. As her weight increased her appetite grew a little better and the depression gradually lifted. The patient four months later was actively employed and had gained forty-three pounds.

This is to me a case of what is called a depressive equivalent. She had a rather frank depressive outbreak twenty years ago. Her adjustment to life after this was somewhat crippled. She was then put on a very poor diet which tended to bring her down physically very markedly. Following this diet she began to associate dietary rules with moral issues, and the more frank expressions of guilt of the past year are to me a very clear indication of depression. It is impossible to say what rôle physical depression through malnutrition played in the development of this psychological condition. The case is interesting primarily because it appeared first as a clear case of malnutrition, and second because the patient explained her incapacity to eat on the basis of guilt feelings strongly suggestive of the depressive reaction.

The final diagnosis on discharge was: a depressive reaction presenting also symptoms of loss of appetite with profound malnutrition and emaciation.

DIAGNOSIS

A depressive reaction presenting also symptoms of loss of appetite with profound malnutrition and emaciation.

FAKE CURES FOR INFLUENZA

Charging that some unscrupulous manufacturers have not hesitated to take advantage of the widespread and probably fully justified public apprehension about influenza by advertising their fraudulent preparations as preventives and cures for the disease, the Federal Food & Drug authorities have announced their intention of cleaning up every alleged cure for influenza they can reach within their powers.

The Federal Food & Drug Act applies only to labels or printed matter accompanying such packages in inter-state business. It does not reach false advertising statements appearing in the press or in any advertising material not included with the preparation itself. If necessary, however, the powers of the Federal Trade Commission and the state authorities may be invoked.

According to the federal authorities, there is no known drug or combination of drugs which will prevent or cure influenza. Products labeled as effectives for this purpose are classed as "misbranded" by the Food & Drug department.

Manufacturers of influenza cures have been given reasonable notice to change their labels and eliminate fraudulent influenza advertising. Eighty brands have already been banned from the market or are now awaiting disposition by the courts. Over 500 specimens of influenza cures have been collected by the department. More than 100 manufacturers have agreed to comply with federal regulations.

—*Bulletin Boston Better Business Bureau.*

NEW ICE CREAM REGULATION

Since April 1 all milk or cream used in the manufacture of ice cream or other "frozen milk products" sold in New York State outside of New York City must be pasteurized either before or after being mixed with other ingredients, according to a regulation enacted by the Public Health Council on March 11. The measure is designed to prevent the spread of communicable diseases through ice cream, milk and cream being the ingredients usually responsible.

In 1925, State Health Department records show, an epidemic of 366 cases of septic sore throat was traced to contaminated milk used in preparation of ice cream. There have been other similar but less extensive outbreaks since. That ice cream prepared by individuals or in small plants has been responsible for all of these is probably accounted for, Health Department officials say, by the fact that in large plants it is common practice to pasteurize the ice cream "mix" at a high temperature.

The new sanitary code regulation also required that "the apparatus, utensils and containers used in the manufacture or delivery of a frozen milk product shall be kept at all times in a clean and sanitary condition," and provides that no person who is suffering or is a carrier of the germs of a disease which may be transmitted through milk or cream may be employed in the handling of ice cream or its ingredients. Ice cream manufacturers are prohibited from continuing to employ persons refusing to submit laboratory specimens required to determine their freedom from such diseases.—*N. Y. Time.*

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ADVANCES IN NEUROLOGY

FOR many years neurologists have occasionally been criticised by their medical confreres as being able to make diagnoses but not being especially successful in treating patients. As one writer has recently put it, "Neurology is an admirable pastime but of little use to the sufferer from nervous diseases." A sturdy refutation of this reproach is noted in the extraordinary development of neurosurgery in the last twenty years. The credit for a large part of this development should be given to Dr. Harvey Cushing, whose work is so well known in Boston, as well as throughout the country. It is rather interesting to get a long-distance view of Dr. Cushing's clinic at the Peter Bent Brigham Hospital, and such an opportunity has recently been granted us by the report of Mr. Hugh Cairns, of London, England, who spent the year 1927 in Dr. Cushing's clinic and has recently published a report on his observations ("A Study of Intracranial Surgery" by Hugh Cairns, Medical Research Council, London, Special Report Series No. 125, 1929).

Mr. Cairns, a graduate of Adelaide University and a former Rhodes scholar at Oxford, was appointed to a Rockefeller fellowship in 1926. His report on his work at the Peter Bent Brigham Hospital covers 83 pages, with numerous splendidly reproduced illustrations. A large part of his paper has to do with the diagnosis of intracranial lesions and he accurately describes and evaluates the various methods used in Dr. Cushing's clinic, including the careful examination of the visual fields, x-ray examinations, ventriculography and other procedures. He was rather surprised to find how much importance was laid on the investigation of the visual fields in every case of suspected intracranial tumor. He feels, however, that there is great value to careful perimetry and many tumors could not be localized without the use of this aid. Mr. Cairns was also impressed by the skill of the x-ray examination and its value in localizing, as well as sometimes depicting the character of, tumors. Ventriculography, a comparatively recent diagnostic procedure, first done in this country in 1918, was used at the Cushing clinic in a relatively small proportion of the cases. The method was reserved for those cases in which all other lines of investigation had failed to reveal the situation or presence of a tumor.

Under the subject of "Treatment", Mr. Cairns delineates Dr. Cushing's well known methods of cranial exploration and pays a definite tribute to the surgeon's ability to detect hidden tumors at the time of operation. He gives figures in regard to the mortality of all major operations during the year September 1926-September 1927; Dr. Cushing's operative mortality was less than 10%. This seems to be a very low figure when one considers the type of case that is operated upon, the extreme difficulty of removing or even exposing cerebral tumors and the fact that many cases are sent to the hospital after a long period of preliminary observation elsewhere. The mortality, of course, depends somewhat on the surgeon, as Mr. Cairns points out, for a surgeon who does radical operations on tumors difficult of access will have a high mortality. The work of Dr. Cushing and Dr. Bailey on the classification of one type of brain tumor, gliomas, from the pathological point of view has been of considerable indirect help in judging what cases are most favorable to operate upon. This knowledge, of course, has affected the operative mortality rate, as certain secondary operations on tumors known to be extremely malignant have been avoided. During the period of observation by Mr. Cairns there was introduced into the clinic the electrothermic method of treatment, by which extremely difficult cases of blood vessel tumors were operated upon. The mortality among this type of tumor is necessarily very high. It is also noted that during the year only 284 operations were done upon 229 patients, about at the rate of one a day. This is a small figure compared with the

number of operations a single individual may do in general surgery, but Dr. Cushing feels that one operation a day of this type is enough for any neurological surgeon to attempt.

There are many other interesting points about Mr. Cairns' report. One is left with the feeling that Dr. Cushing's clinic is adding new and important material almost daily to the treatment of one type of nervous disease, that is, brain tumor.

NEW YORK'S DIPHTHERIA PREVENTION CAMPAIGN

New York, under its new Health Commissioner, Dr. Shirley W. Wynne, has embarked upon what is probably the most far reaching diphtheria eradication campaign in history. For the purposes of this campaign a diphtheria prevention commission has been formed under the chairmanship of Thomas W. Lamont, and the press, the pulpit and the medical profession have been enlisted in its services. Co-öperating with the commission are the leaders of the county medical society; the Cardinal is lending his influence in this cause, and toxin-antitoxin stations are being opened in the parochial schools.

This is not State Medicine; immunization by the private physician is being urged on the public, and the physician himself is urged to present the matter clearly to his patients. The Health Department, in supplementing this activity, stands ready, of course, to immunize without charge those children whose parents cannot afford to pay for the services of the private physician. From the first of January until the end of March it has been computed that 14,093 children had already been immunized by the special clinics, and 7,798 by private physicians.

The first diphtheria antitoxin made in this country was prepared in the New York Health Department Laboratory, and active immunization by toxin-antitoxin on any scale was begun in New York about thirteen years ago. Other communities, however, carried on the work better than did New York, for New York still has approximately 15,000 cases of diphtheria annually, with over 700 deaths. Realizing that it is ideally possible to reduce these figures to practically zero, the present campaign has been started.

All health advances, in the last analysis, depend upon the education of the people, and for this, to a great extent, the medical profession is responsible. The millennium in preventive medicine cannot have arrived until the practicing physician realizes that he is an unofficial health officer, working hand in hand with the official health agencies. The importance of this relationship is realized by the diphtheria prevention commission of New York, and upon the co-öperation accorded it by the physician, much of the success of its campaign will depend.

The layman himself is a factor of the utmost importance in determining the success of measures which are designed for his welfare. Indifference on his part means failure; a despotic attitude, no matter how benevolent are its intentions, on the part of those who are attempting to safeguard him spells failure. In successful public health activities there must be an interested triumvirate of official agencies, practicing physician and public, and their hands must be held up by the fourth estate. This is the basis on which New York's diphtheria prevention campaign has started, and it should meet with the success which it deserves and which we unanimously hope for it.

THE ANTIOCH SHOE

Antioch College, practical as always in its research contributions, noted that Antioch girls in many cases became seriously fatigued and with lowered efficiency under the normal strain of productive living during their five-week period of co-öperative employment. In a number of cases the cause was traced to bad posture and further to improperly designed shoes.

It was found, on investigation, that foot troubles from faulty shoes were on the increase because of the difficulty for women and girls of finding an attractive shoe which would keep the normal foot from serious harm. All available shoes were rejected either by the girls themselves or by the group of medical experts who were put to work on the problem.

Studies were then made with the planning of a prophylactic as opposed to a corrective shoe as their objective, and the following essentials of construction were found necessary:

(1) Sufficient width across the ball to permit the metatarsals to carry the body weight without lateral crowding.

(2) Width across the toes to prevent crowded toes, etc.

(3) Ample length over all, to prevent jammed toes.

(4) Broad, low shank, with heels no higher than 1½ inches to restrict the amount of weight thrown on the metatarsal heads, and to contribute to body balance and poise.

(5) Semi-flexible shank, rigid to a point about 1¼ inches ahead of the heel front, fully flexible beyond. This supports the foot when at rest, but provides flexibility when walking.

(6) Broad heel seat to allow for expansion, and narrow at the top to prevent the heel from slipping and to insure a snug fit at the ankle.

(7) Moderately straight inner line to permit proper toe position.

(8) Instep on the inside higher than on the outside, conforming to the true shape of the average foot.

(9) Attractive patterns and leathers to interest the feminine eye.

Anyone interested in correct shoe fitting will find of value the pamphlet issued by Antioch

College on this subject, giving the results of its investigation.

DR. RAY LYMAN WILBUR ADDRESSES THE BOSTON CHAMBER OF COMMERCE

Dr. Ray Lyman Wilbur, Secretary of the Interior, was the guest of the Boston Chamber of Commerce at luncheon, April 17, 1929 and spoke on the work of the Committee On The Cost Of Medical Care.

In the introduction, Dr. Wilbur's varied experiences as an associate with President Hoover in early life and in Leland Stanford Jr. University which established bonds of friendship which have been strengthened as the years have gone were depicted. His medical education was acquired in the Medical School of this University of which he afterward became Dean and later President of the University. His unusual ability led to further recognition as President of the American Medical Association and Chairman of the Council on Medical Education. He is now Chairman of the Committee on the Cost of Medical Care.

In opening his address Dr. Wilbur explained the reason for the establishment of the Committee on the Cost of Medical Care and referred to the interest which had been shown by organizations in contributing money for the five-year study under this arrangement. He explained the changed conditions in medicine which have been brought about by the increase in scientific knowledge in the last few generations, whereby the laboratory has put the medical profession in a peculiar predicament, in so far as new information applies to modern life. Medicine of the present day deals with facts rather than speculation. As an illustration he referred to the microscope as determining in many fields the causes of diseases, and to other laboratory procedures by which evidence has been acquired with respect to pathologic processes. In this way he showed that the physician who has acquired a recent education is in an advantageous position as compared with the practitioner of many years who has not kept himself in touch with modern medicine through post-graduate study. At the present time the fundamental facts have become the objective of medicine and in consequence the laboratory has changed the practice of medicine so that hospitals instead of being, as formerly, a last resort, have become the resource of the patient in the application of efficient therapeutic measures. He referred to the social side of the medical changes which move more slowly than the scientific because the doctor and his patients will continue to maintain the same intimate relation as formerly, and when to this personal interest can be added the benefits of scientific treatment, the combination will be ideal. The public must realize that there is a definite economic problem in the relation of the doctor's work to the needs of the patient. The modern well-qualified doctor has to provide himself with equipment often-times amounting to ten thousand dollars in order to secure a place to work, proper assistance and meet the expense of transportation. This makes it impossible for him to provide the service which many of our younger people need at a reasonable cost. People starting in life with ambitions for a home and family want a chance to live and develop, and not charity, and yet the problems of illness may, under present conditions, overwhelm a family. It is the duty of the medical profession to solve these financial problems for them. Unless it is done by the profession other organizations will take upon themselves the responsibility and perform the service which the profession should undertake. It is a matter of far-reaching economic importance extending beyond the needs of the individual. Taxpayers must be led to believe that there is real value in public health functions and that increased expenditures for intelligent preventive care will obviate much of the burden now borne by society at large. He explained that the general conception of human life is inadequate and that it must be realized that it is through medical science that life can be saved. One difficulty at the present time is in the distribution of medical service.

He explained that too much must not be expected of doctors in the present state of medical education because mistakes are sometimes made, although the average of medical services is infinitely better than that supplied by the charlatan. This study of the Cost of Medical Care relates largely to distribution of medical service on a satisfactory basis which up to the present time has not been worked out. This study which is in progress by this Committee is a fact-finding study. It will cost a great deal of money but that is the least consideration because the load now carried is too heavy for a large proportion of families. The Committee is undertaking this work without prejudice, and wants to assist in maintaining the family doctor contact, the human relationships, and the elimination of state medicine so far as it may inter-

fere with the ideal service of the doctor to his patient.

He vividly set forth the nature of the appeal which should lead to recognition and support of the work that is being done by the Committee.

This very inadequate report of a logical presentation of the complications incident to the problems of medical service does not do justice to the brilliant and orderly exhibition of the attitude of Dr. Wilbur's mind. It is a great comfort to feel that one of the great leaders in medicine in this country is now occupying an important position in the Cabinet of the President of the United States, and under his leadership we can confidently expect that great improvement will take place in medical service to the people of this country.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

ZINSSER, HANS. A.B., A.M., M.D. Columbia University, 1903. Professor of Bacteriology and Immunology, Harvard. His subject is: "An Immunological Consideration of Pneumonia and a Discussion of the Rational Basis for Vaccine Therapy." Page 853. Address: 52 Chestnut Street, Boston.

CHEEVER, DAVID. A.B., M.D. Harvard 1901. F.A.C.S. Associate Professor of Surgery, Harvard Medical School. Surgeon, Peter Bent Brigham Hospital. His subject is: "The Warren Stock and Some of Its Scions." Page 857. Address: Peter Bent Brigham Hospital, Boston.

SHATTUCK, FREDERICK C. A.M., M.D. Harvard Medical School 1873.* Jackson Professor of Clinical Medicine, Emeritus, Harvard Medical School. His subject is: "J. C. Warren the Man." Page 863.

BREMER, JOHN L. A.B., M.D. Harvard, 1901. Associate Professor of Histology, Harvard Medical School. His subject is: "John Warren 1874-1928." Page 864. Address: Harvard Medical School, Boston.

SMITH, GEORGE GILBERT. A.B., M.D. Harvard, 1908. F.A.C.S. Urologist, Massachusetts General Hospital and Palmer Memorial Hospital. Surgeon, Huntington Memorial Hospital. His subject is: "Fifty Cases of Renal Infection." Page 867. Address: 6 Commonwealth Avenue, Boston.

BELDING, DAVID L. M.A., M.D. Harvard, 1914. Professor, Pathology and Bacteriology, Boston University School of Medicine. Director, Routine Laboratories, Massachusetts Homeopathic Hospital. Member of Research Staff, Evans Memorial Hospital. Address: 80 East Concord Street, Boston. Associated with him is:

FOGEL, MINNA. Technician, Evans Memorial Hospital. Their subjest is: "Comparison of Laboratory Reports Upon Release Diphtheria Cultures." Page 876. Address: 80 East Concord Street, Boston.

LOTHROP, OLIVER A. A.B., M.D. Harvard, 1908. Associate Surgeon, Massachusetts Eye and Ear Infirmary. His subject is: "Infection of the Antrum or Maxillary Sinusitis." Page 879. Address: 101 Beacon Street, Boston.

PARKER, IDA R. B.A. Wellesley College. Several Years in Child Welfare Work. Associate Director, Research Bureau on Social Case Work 1920-27. Present position since 1927, Research Worker, Social Service Department, Massachusetts Homeopathic Hospital. Her subject is: "The Interdependence of the Doctor and Social Worker in Legal Adoption." Page 883. Address: 750 Harrison Avenue, Boston.

CROTHERS, BRONSON. A.B., M.D. Harvard, 1910. Instructor in Pediatrics and in Neurology, Harvard Medical School. Visiting Neurologist to Children's and to Infants' Hospital, Boston. His subject is: "The Place of the General Practitioner in a General Hygiene Movement." Page 887. Address: Children's Hospital, Boston.

*Deceased, January 11, 1929.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

Frederick L. Good, M.D., *Chairman* **Louis E. Phaneuf, M.D.,** *Secretary*
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Will you please discuss Postpartum Hemorrhage?

Postpartum hemorrhage is such a broad subject that in the space alloted the answer must of necessity be brief.

The first thing to determine with excessive bleeding after birth of the baby is the origin of this bleeding. It may come from deep perineal lacerations;—from vaginal wall or cul-de-sac tears;—from laceration of cervix;—from partial detachment of placenta or uterine rupture. When the above are found to be the cause the treatment is, in the lacerations of perineum, vagina or cervix, suturing torn areas, or if that is not possible, pressure packs or hemostats temporarily. If detached placenta, emptying uterine cavity of placenta. If rupture of uterus temporary packing with later more drastic surgery.

When hemorrhage occurs after delivery of the placenta then it usually arises from the placental site and it is this type of hemorrhage that commonly is called Postpartum Hemor-

rhage and is a most serious complication of the third stage of labor.

Inertia of the uterine muscles and thus lack of sufficient contractile force to close off the uterine sinus areas, after separation of the placenta, is the most common cause of this bleeding. This inertia we see in cases of over distended uteri, such as with hydramnios or large babies. We see it in the long, difficult labor, especially in the woman who enters labor in poor physical condition. We get excessive hemorrhage in an odd case where a mechanical factor is present to prevent normal contractions, such as intra-mural or submucous fibroids. One of the most common causes of true postpartum hemorrhage, is premature Credé of placenta. After delivery of the baby there is a period during which nature tries to adjust itself and then we get normal uterine contractions, coincident with these contractions the placenta becomes separated from the uterine wall but the important factor is, that contractile power is sufficient to close down the open uterine sinus areas and thus prevent excessive bleeding. With improper or premature Credé the placenta is torn off the uterine wall by external manipulation and before the natural contraction of uterine muscle has been instituted and thus open sinus areas are free to bleed.

In the treatment I would suggest careful, conservative attention to the third stage of labor but when hemorrhage does take place then immediate gentle massage of uterus through the abdominal wall to set up contractions; pituitrin or ergot by hypodermic injection; if these do not suffice, packing into uterine cavity with either plain or medicated gauze and pack in such a complete manner as to eliminate dead space behind pack, into which bleeding might take place and yet be concealed. The ordinary packing of vagina is of no value in a true case intrauterine bleeding. If patient shows systemic reaction, salt solution by rectum, under skin or intravenously or blood transfusion. Trendelenberg position with heaters and blankets. Morphia if patient is excited. Pulse and blood pressure should be noted frequently for by these we may keep track of the affect of treatment and also get evidence early of delayed shock or other systemic affects of loss of blood.

Questions of a similar nature to the above will be discussed in the JOURNAL each week until June. They may be addressed to the Clerk of the Committee, in care of the JOURNAL and will be answered by members of the Committee of the Section of Obstetrics and Gynecology.

MISCELLANY

A TESTIMONIAL DINNER TO DR. HENRY D. CHADWICK

A testimonial dinner to Dr. Henry D. Chadwick, Superintendent of Westfield State Sanatorium for the past twenty years, was held at the University Club, Boston, on Tuesday evening, April 16. The dinner was held under the joint auspices of the State Department of Public Health and the Massachusetts Tuberculosis League. Dr. Chadwick on May 1st is to become Director of the Division of Tuberculosis of the City Department of Health, Detroit, Michigan.

In spite of one of the severest storms of the season, sixty friends of Dr. Chadwick gathered to pay him tribute.

Dr. George H. Bigelow, State Commissioner of Public Health, presided.

Dr. Roger I. Lee of the Public Health Council of the Commonwealth paid a glowing tribute to the character and ability of Dr. Chadwick. He said in part, "We are all here I take it on a common basis. We are all here out of affection and admiration for Dr. Chadwick. We are glad of course that his ability has been recognized. We appreciate that compliment to him. We are of course very sorry that he is leaving us. The most striking thing about Dr. Chadwick is Dr. Chadwick himself—the character and the affection and admiration that he inspires in everybody who knows him. I am not going to talk about that because it might embarrass Dr. Chadwick.

"I have just one thing I would like to say about Dr. Chadwick. A good many years ago I happened to be the Secretary of a Tuberculosis Commission—the Commission of 1910. At that time we made a survey of the tuberculosis institutions of the State. One of my jobs was to go out to Westfield and see that Institution in its early stages. I was impressed at that time with Dr. Chadwick's clear-eyed vision because even then he was beginning his work with children. He has kept up that work and a few years ago the question came up of the Ten-Year Program which Dr. Chadwick inaugurated, drew up and put before the Public Health Council and which the Public Health Council put before the proper authorities. It seems to me that here is the keynote of Dr. Chadwick and his work. Those of you who have been connected with State Sanatoria know how difficult it is to get things done, particularly in the way of investigation and research.

"Anyone who knows what a hospital superintendent's job means knows that to be able to do the work with patients and to find time to do research work is indeed a miracle.

"The one message that I want to bring to you is that when a man laboring under the difficulties that Dr. Chadwick was under has a good idea and puts it over, it is a great thing not only for tuberculosis work and for the children and for Dr. Chadwick but also a great thing for the public service."

Dr. Alfred Worcester, Professor of Hygiene of Harvard College, who was one of Dr. Chadwick's instructors in Medical School and who knew Dr. Chadwick in the days of his early practise in Waltham, spoke feelingly about the struggles of the young doctor and compared his career to that of Dr. Edward L. Trudeau. Dr. Worcester's tribute to Dr. Chadwick's leadership and enthusiasm was as follows:

"There is one thing more—one indispensable medicine. No matter how beautiful the surroundings, no matter how fresh the air, no matter how perfect the rest, there is something still which is worth more than all of these and that is the enthusiasm and desire to live if for nothing more than to be able to reward and reproduce kindness that is being re-

ceived. However expert others may be in providing right hygiene treatment for patients, Dr. Chadwick has had no superior in creating this enthusiasm and desire to live in even those very low where there is apparently no hope of recovery, nor do I believe that he has any peer. Not only does he excel in creating enthusiasm but also in his great patience and the persistence of his devotion."

Dr. Edward O. Otis, Honorary President of the Massachusetts Tuberculosis League, predicted for Dr. Chadwick a brilliant record in Detroit, where he is to begin on May 1st as Director of the Division of Tuberculosis in the City Department of Health. Dr. Otis strongly advocated the extension of research such as Dr. Chadwick has carried on at Westfield to all State Sanatoria.

Dr. Frederick T. Lord, President of the Massachusetts Tuberculosis League, said that the name of Dr. Chadwick should be added to that of Dr. Theobald Smith as one of the illustrious sons of Massachusetts who has made a substantial contribution to tuberculosis research.

Dr. Lord referring to the work which has been done under Dr. Chadwick's leadership in the Ten-Year Program spoke in part as follows: "Important evidence has been obtained regarding the trend of tuberculous infection. Twenty years ago Von Pirquet devised a method of testing for the presence of tuberculous infection by use of a skin test. It appears from the work that has been done along this line that the incidence of tuberculous infection rises very rapidly to almost universal infection at the age of fourteen. The tuberculosis program of prevention under Dr. Chadwick has included a test of children in very large numbers throughout the country. Out of 17,000 children examined Dr. Chadwick has found that only about 28% are infected. He has amassed a great amount of material that will serve for further study. Dr. Chadwick has found that contact and crowding are the chief sources of infection. Undernourishment may be the result of infection but it is after all for the most part the encounter which gives rise to infection. It has been shown that tuberculous infection occurs in 50% after contact and about half that number where there is no contact.

"Dr. Chadwick and his associates have also made important contributions to our knowledge of juvenile types of tuberculosis and they have indicated that it is a distinctive type of infection which can be recognized by x-ray examination and much less readily by histories and physical examinations. Study of this type of tuberculosis in children has led Dr. Chadwick to originate and accomplish the adoption of a term in classification of tuberculosis—that is hilum tuberculosis."

Dr. Sumner H. Remick, Director of the Division of Tuberculosis of the State Department of Health, who was to have spoken of Dr. Chadwick as a colleague, was unable to be present on account of illness. Dr. Bigelow gave a message from Dr. Remick on behalf of the associates of Dr. Chadwick throughout the Health Department.

Dr. Chadwick was called upon by Dr. Bigelow and his address closed the program. He spoke as follows:

"My chief and other good friends who have come here to-night—I wish to express my heart-felt thanks. I think that vivisection should be done under an anaesthetic. There is much less emotional strain for the victim.

"I am especially grateful for the presence here of my good friend, teacher and father confessor, Dr. Worcester, to whom I owe much. As he said, he was the one who induced me to go to Waltham. I went there largely to be under his teaching. I expected to be a surgeon until the calamity of which Dr. Worcester has spoken came and led me to turn my work in other directions.

"I went to Saranac Lake and had some very pleasant months there under Dr. Trudeau's care and was given an opportunity to do work in the Saranac Laboratory. Being under the master of tuberculosis, Dr. Trudeau gave me inspiration to go on and feel that life had something left for me to do.

"The opportunity to go to Pittsford Sanatorium, Pittsford, Vermont, then came to me and I accepted and established myself among the Green Mountains.

"Hearing of three sanatoria that were to be opened in Massachusetts and wishing to return to my native State, I wrote to Dr. Cabot, Chairman of the Commission, and made application for a position as Superintendent. My application was accepted and I began my duties as Superintendent of Westfield State Sanatorium. At that time there were three State Sanatoria. To-day we have four State Sanatoria, seven County Sanatoria and two in the process of being built, in addition to several municipal sanatoria. There are available for patients something over 3,500 beds.

"In regard to this work which you have been so kind as to refer to:—I remember well a report which I read at a meeting on the examination of 166 children. I thought at that time, before we had the x-ray, that we could determine tuberculous children by physical examination. That was the real beginning of our program for children.

"Dr. Lord has given you an outline of what we have learned in five years of this work. One thing more I would like to add is that I believe we can pick out the 10% of the children that will provide or produce 50-75% of the adult type of tuberculosis in the next ten years. I recently had a conference with Dr. Rathbun and he says that he finds among those who have adult tuberculosis 50-75% have calcified nodules. He feels that we can pick out reactors by our methods of testing and x-ray. That being so it behooves us to bring all our efforts to bear on that 10% and provide them with good care so that we may prevent them from suffering with tuberculosis in the future.

"In thirty years we have accomplished a great deal. In 1898 there were 280 deaths per 100,000; in 1908 there were 210 deaths per 100,000; in 1918 there were 146 per 100,000; and in 1928, 73 per 100,000. It is a significant thing to me that in the first decade the mortality rate was reduced about one-quarter, the second decade about one-third and the third decade about one-half. Now we are down to 73. What of the next ten years? In my opinion it is going to be an easy matter to cut that rate in half again because we are hospitalizing the patients that are spreading the disease, we are caring for infected children and child welfare work is bound to show marked results. The death rate in Springfield last year was only 45 per 100,000. I believe those figures can be equalled very easily and I hope I may live another ten years to see how this prophecy comes true.

"I was asked to go to Detroit a few weeks ago and they showed me what they wanted done and the machinery with which to do it. The tuberculosis

prevention work is all under the City Health Department. They have ample funds. They have a hospital with 400 beds which cost between two and three million dollars. Each patient has either a private room or, at the most, shares a room with one other patient. Nearly all the rooms have a private porch. On the seventh floor there is opportunity for heliotherapy treatment. They have the most complete x-ray equipment that I have ever seen.

"After seeing this wonderful equipment I was greatly tempted and finally succumbed. I will have only medical work to do and have always enjoyed that side of the work.

"I regret leaving Massachusetts and all you good friends here who have been associated with me. I cannot adequately express my appreciation of this expression of your good will and friendship. It will be something for me to remember all my life. I accept the Godspeed which you wish me with a very full heart and I hope when you come to Detroit that you will look me up."

Among those present were: Dr. George H. Bigelow, Mrs. Henry D. Chadwick and Miss Barbara Chadwick, Mr. Frederic Edwards, Dr. Edward O. Otis, Dr. Frederick T. Lord, Dr. Alfred Worcester, Miss Margaret Weir, Dr. Ernest B. Emerson, Mrs. F. Anna Green, Dr. Vincent Y. Bowditch, Professor Murray P. Horwood, Dr. M. Luise Diez, Dr. Samuel Hoberman, Mr. William N. Goodell, Dr. Harry S. Wagner, Dr. James J. Minot, Dr. Moses Stone, Dr. Paul Wakefield, Dr. George W. Holmes, Dr. Hubert Boyle, Dr. Carl C. MacCorison, Dr. J. Holbrook Shaw, Dr. Leon A. Alley, Miss Cora L. Cooke, R.N., Miss Bernice W. Billings, R.N., Dr. John B. Hall, Dr. Roy Morgan, Dr. Walter A. Griffin, Dr. Gerardo M. Balboni, Dr. Francis P. Denny, Dr. William R. Martin, Dr. S. L. Skvirsky, Dr. Joseph Pratt, Mrs. E. Frank Guild, Mrs. George Mann, Dr. Francis H. MacCarthy, Dr. George N. Lapham, Mrs. Reginald Heber White, Dr. and Mrs. Robinson, Dr. H. P. Colton, Dr. J. N. Reddy, Mr. Frank Kiernan, Dr. Charles S. Millet, Dr. Mary R. Lakeman, Dr. Lila Burbank, Mr. Clifton H. Hobson, Dr. Earle C. Willoughby, Dr. Bayard T. Crane, Dr. Olin S. Pettingill, Dr. Harold E. Miner, Dr. C. Benjamin Fuller, Rev. Father Quinlan, Dr. MacNamee, Dr. H. B. Rowe and Sargent Rowe.

CORRESPONDENCE

MARVELLOUS RESULTS OF THE HOOK-WORM CURE

Mr. Editor:

Rodman, in his interesting book "Yarns of a Kentucky Admiral" (The Bobbs-Merrill Co., Indianapolis, 1928), gives the following remarkable letter in his chapter on the Canal Zone.

"Barton P. O.
"Jamaica, B. W. I.,
"October, 1924,

"Dare Dr. W——:

"I write to complain erbout the hook Worm Medsin. It is too stronge an has caus me a lot of trubble. From sins I tak the medsin two treatment I feel strong an well in bodie an min an like work more than before.

"The which is all very well.

"But dr. Sir, a great chang has come over me in other ways. From til I tak the medsin two treatment I was mild an of a sweet disposition an were known by sich throughout the country roun erbout. An very patient. Now Sir all is chang and I feel very civil to myself. So much so that on Satday last one Jeptha Smith cuss me an I box him down too hard, and him threaten to run law wid me.

"Sir, from your kindness, if the aforesaid person run law wid me I respectful asks to see His Honor for it were no other than the Hook Worm medsin make me act in sich a fierce manner.

"Expectin your kind help in need be an your indulgence ever crave, I remain as ever,

"Your patient,
"(sgd.) ABIJAH THOMAS."

Perhaps the pharmacopeia needs revision, and thymol should be classed as a "roborant."

Very truly yours,
WM. PEARCE COUES, M.D.

April 11th, 1929.

POST-GRADUATE SCHOOL OF THE UNIVERSITY OF GRATZ

Editor of NEW ENGLAND JOURNAL OF MEDICINE.

Dear Sir:

We trust we are not presuming in asking you to inform your readers concerning the Post-graduate school of the University of Gratz, Austria.

Realizing the success and popularity of the Viennese methods of teaching among American doctors we are in the process of forming a comprehensive plan of study incorporating the following ideas:

(1) All courses to be given in English since the majority of the chiefs and assistants in the various specialities speak fluent English.

(2) The stressing of clinical and bed-side teaching with only a minimum of didactic and theoretical work.

(3) Cost of courses to be moderate.

(4) A diploma to be granted after a specific length of stay to assure a well rounded out grasp of the specialities.

Gratz is a city of 160,000 inhabitants, 170 miles south of Vienna, 4 hours by train, with many fast trains daily. The general hospital of 1600 beds is one of the newest in central Europe, fully and modernly equipped, and divided into separate buildings for each major speciality.

F. HAMBURGER.
Dean of the Medical Faculty.

NEWS ITEMS

DR. EUGENE L. OPIE'S ELECTION TO THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH—Dr. Eugene L. Opie, Director of the Department of Pathology of the University of Pennsylvania and the Laboratory of the Henry Phipps Institute, Philadelphia, has been elected to the Board of Scientific Directors of the Rockefeller Institute for Medical Research, New York.

THE RETURN OF DR. GEORGE H. MONKS—It is a pleasure to report that Dr. George H. Monks has returned from his trip around the world and relates several interesting features of his experiences. One of especial interest is connected with the publi-

cation of a daily paper on the Empress of Australia on which a group of twenty-two other eminent physicians were traveling. This group included representatives from Canada, England and the United States. Frequent meetings were held followed by informal talks by the members. On one occasion when it came Dr. Monks's turn to entertain the company he expressed regret at not having one of his later papers to present. Fortunately one of the company who had received a reprint of Dr. Monks's "Selections from the Medical Writings and Sayings of Dr. Oliver Wendell Holmes" which he had taken to re-read on the voyage had it with him and Dr. Monks was persuaded to read this particular paper, which was very much appreciated by the whole company.

Dr. Monks apears to be in the best of health and returns to take up his usual activities, which are more concerned with literature which has taken the place of his specialty in recent years.

NOTICES

A CORRECTION

In the account of Dr. Cushing's birthday exercises which appeared on page 848 in the issue of April 18, the reference to the *Annals of Surgery* should have been the *Archives of Surgery*.

SUMMER CLINICS, CHICAGO MEDICAL SOCIETY

The Chicago Medical Society will hold a two weeks' clinics at Cook County Hospital June 17 to 29 inclusive. Members of the hospital staff will give these clinics on the following schedule:

8 to 10 a. m. Medical and surgical clinics in amphitheatres.

10 to 12 a. m. Ward walks.

12 to 1 p. m. Luncheon.

1 to 3 p. m. Medical and surgical clinics in amphitheatres.

3 to 5 p. m. Ward walks.

The amphitheatre work will be devoted to medical and surgical dry clinics and lectures. Two amphitheatres will be used simultaneously, one for medical and one for surgical clinics. Each clinic will be one hour in length, thus giving four medical and four surgical clinics daily. Operative work will be done during the hours devoted to ward walks. The clinical work will be confined largely to general medicine and surgical subjects.

It is planned to hold six meetings to be addressed by speakers other than members of the hospital staff on such subjects as heart disease, tuberculosis, obstetrics, physiotherapy, gastro-intestinal disorders and possibly diabetes.

A registration fee of ten dollars will be charged to cover the cost of preparing for and conducting the clinics.

For further information apply to the Chicago Medical Society, 185 N. Wabash Ave., Summer Clinics Committee.

THE SEVENTY-FIFTH ANNIVERSARY OF THE STATE INFIRMARY AT TEWKSBURY

The Commonwealth of Massachusetts
Department of Public Welfare

The trustees invite the Members of the Medical Profession to unite with them in the celebration of the Seventy-fifth Anniversary of the State Infirmary at Tewksbury on Wednesday, May 1, from 1 to 12 P. M. Exercises will begin at 2:30 P. M.

His Excellency, the Governor is expected to address the assembly, and other dignitaries have been invited to speak.

The hospital and other parts of the institution will be open for inspection from 1 to 5 P. M.

Refreshments will be served in the new lodge from 4 to 6.

Reunions of Medical and Nursing Alumni and War Veterans from 5:30 to 6:30.

Song Festival, 6:30 to 8.

Dancing, 8 to 12 P. M.

REPORTS AND NOTICES OF MEETINGS

HAMPDEN DISTRICT MEDICAL SOCIETY

The annual meeting of the Hampden District Medical Society was held April 16 at the Hotel Kimball, Springfield.

The literary program was provided by the New England Heart Association.

Dr. Samuel A. Levine of Boston spoke on, "Cardiac Adequacy for Major Surgical and Obstetrical Procedures."

Dr. William H. Robey gave a talk on, "Coronary Artery Diseases." Lantern slides of the injected cardiac vessels supplemented Dr. Robey's talk.

A large attendance was due to the excellent program presented.

At the business meeting the following officers were elected:

President: Dr. F. B. Sweet, Springfield.

Vice President: Dr. M. W. Pearson, Ware.

Secretary-Treasurer: Dr. H. L. Smith, Springfield.

Censors: H. B. Chase, Westfield; F. Holyoke, Holyoke; L. D. Chapin, Springfield; G. Steele, Springfield; M. W. Harrington, Springfield.

Councillors: E. A. Bates (Nominating), H. B. Chase (Alternate), G. L. Steele, A. J. Douglas, M. B. Hodskins, J. P. Schneider, H. B. Gofney, E. A. Knowlton, A. L. Damon, W. J. Dillon, G. D. Henderson, E. L. Davis, S. A. Mahoney, A. G. Rice.

Commissioner of Trials: John M. Birnie.

The meeting was concluded with dinner.

NORTH SHORE MEDICAL FRATERNITY

The monthly meeting of the North Shore Medical Fraternity of Lynn was held on April 9th. Dr. William R. Morrison of the Boston City Hospital delivered an extremely interesting and thorough paper on "Surgery of Peptic Ulcer" before a large attendance.

ALBERT H. COVENER, M.D., *Secretary.*

DELTA OMEGA LECTURE AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The second annual lecture under the auspices of Delta Omega, the honorary public health society, was delivered at the Massachusetts Institute of Technology on April 12, 1929 by George T. Palmer, Dr. P.H.

Dr. Palmer spoke on the school health program of the American Child Health Association, of which

he is Director of Research. Members of the Gamma Chapter at M. I. T. and of the Beta Chapter at the Harvard School of Public Health, as well as many others interested, were present.

Following the lecture, a dinner of the Delta Omega Society was held, with Dr. Palmer and Dr. James A. Tobey of New York, national secretary of the society, as the principal speakers. Professor S. C. Prescott presided.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The Essex South District Medical Society held a meeting at the Essex Sanatorium on April 3, 1929.

At the clinical session cases from the hospital were shown with x-ray studies.

A buffet supper was served at seven p. m.

The guest of the evening was Dr. Fred H. Albee of New York, who spoke upon "Automatic Machinery in Bone Surgery," with demonstrations by moving pictures.

WM. T. HOPKINS, *Reporter.*

AMERICAN CLIMATOLOGICAL AND CLINICAL ASSOCIATION

FORTY-SIXTH ANNUAL MEETING

This meeting will be held at Old Point Comfort, Va., Thursday, Friday and Saturday, May 2, 3, 4, 1929.

PROGRAM

The Headquarters of the Association will be at the Chamberlain-Vanderbilt Hotel.

Meeting of the Council, evening of May 1.

PROGRAM OF SCIENTIFIC SESSIONS

Chamberlain-Vanderbilt Hotel, Old Point Comfort, Va.

THURSDAY, MAY 2, 1929, 10:00 A. M.

Presidential Address, J. WOODS PRICE, M.D.

MEMORIAL NOTICES

William LeRoy Dunn, M.D., by Roy D. Adams, M.D.
Charles L. Minor, M. D., by Paul H. Ringer, M. D.
Bryce W. Fontaine, M.D., by James E. Paullin, M.D.

1. Within Our Power. Henry Sewall, M.D., Denver, Col.

2. Purpura Abdominalis (Henoch) in Patient 80 Years of Age. Case report with Autopsy Findings. John P. Sawyer, M.D., Cleveland, O.

3. Pellagroid Skin Lesions in a Case of Cachexia Strumipriva. James H. Smith, M.D., Richmond, Va.

4. The Use of Diathermy and Oxygen in the Treatment of Broncho-Pneumonia. Stuart Prichard, M.D. and Luther A. Tarbell, M.D., Battle Creek, Mich.

5. Liver Extract in the Treatment of Non-Tropical Sprue. William B. Porter, M.D., Richmond, Va.

6. A Study of Tissue Allergy in Skin Transplants. A. H. W. Caulfield, M.D., M. H. Brown, M.D., and William Manger, M.D., Toronto, Canada.

7. Light. Wm. Duffield Robinson, M.D., Philadelphia.

8. Case of Effusion on Right Mediastinal Pleura. Lantern. A. F. Jennings, M.D., Detroit.

Afternoon free for golf, boating, riding and visiting.

FRIDAY, MAY 3, 1929, 9:30 A. M.

SECOND DAY

9. Further Observations as to the Etiology, Treatment and Prognosis in Auricular Fibrillation. Lantern. William S. Stroud, M.D. and John A. Reisinger, M.D., Philadelphia, Pa.

10. Syphilitic Myocarditis. James E. Paullin, M.D., Atlanta, Ga.

11. Coronary Infarction. Robert Wilson, M.D., Charleston, S. C.

12. Diagnostic Relations Between the Gall Bladder and the Heart. Stewart R. Roberts, M.D., Atlanta, Ga.

13. The More Common Heart Irregularities. Lantern. Thompson Frazer, M.D., Asheville, N. C.

14. The Treatment of Auricular Flutter. An analysis of fifty cases. Thomas M. McMillan, M.D., and Samuel Bellet, M.D., Philadelphia.

15. Obstruction of the Superior Vena Cava. Lantern. J. Heyward Gibbs, M. D., Columbia, S. C.

16. Diagnosis in Chronic Chest Disorders. Roy D. Adams, M.D., Washington, D. C.

Dinner at Hotel at 7 P. M.

SATURDAY, MAY 4, 1929, 9:30 A. M.

THIRD DAY

17. Duration of Fatal Phthisis. Harry L. Barnes, M.D. and Lena R. P. Barnes, Providence, R. I.

18. Genito-Urinary Tuberculosis. Alexius M. Foster, M.D., Colorado Springs.

19. The Significance of Comparative X-Ray Findings in the Prognosis of Pulmonary Tuberculosis. Francis B. Trudeau, M.D., Saranac Lake, N. Y.

20. Results of Phrenico-Exairesis in the Treatment of Pulmonary Tuberculosis. (A summary of 200 cases.) Ray W. Matson, M.D., Portland, Ore.

21. The Surgical Treatment of Tuberculosis Empyæma. Lantern. By invitation. E. A. Archibald, M.D., Montreal.

22. Pulmonary Neoplasm and Differentiation from Pulmonary Tuberculosis. Walter C. Klotz, M.D., New York.

23. Calcified Mesenteric Lymph Nodes in Children. Willard B. Soper, M.D., New Haven, Conn., and Ethel C. Dunham, M.D.

24. Massive Atelectasis. Lantern. Charles Hartwell Cocke, M.D., Asheville, N. C.

25. Broncholiths. Report of Two Rather Unusual Cases. John J. Lloyd, M.D., Rochester, N. Y.

26. Character of Blood Changes in Cases of Chronic Pulmonary Disease. W. S. Lemon, M.D., Rochester, Minn.

For further information apply to Dr. A. K. Stone, Secretary, Framingham, Mass.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

Eighty-eighth Annual Meeting will be held upon invitation of Management and Medical Staff at Lawrence General Hospital, one Garden Street, Lawrence, Wednesday, May 1, 1929 (Tel. 5156).

11 to 12:30. Orthopedic Clinic in Out Patient Department by Benj. E. Wood, M.D., of Boston.

11 to 12:30. Ophthalmological, Aural and Laryngological Clinic in O. P. D. by Wm. H. Merrill, M.D., and Alfred E. Chesley, M.D., of Lawrence.

11 to 12:30. Inspection of the entire Hospital and Laboratory with guides, and an exhibit of surgical apparatus, recently acquired by the Hospital, and a collection of interesting old medical books loaned by Harry H. Nevers, M.D., of Lawrence.

12:30 P. M. sharp. Dinner in dining rooms, which will be followed by the business meeting, after which

Edwin A. Locke, M.D., of Boston, Clinical Professor of Medicine at Harvard University Medical School, will talk upon "Acute Empyema" (40 minutes). Discussions invited.

Following these exercises there will be operations in the Surgical rooms by Staff Members, and other clinical material shown.

Automobiles may not enter Hospital grounds on this day, but ample parking space is provided on Garden and Prospect Streets, adjoining.

Meeting of Censors will be held at Hotel Bartlett, 95 Main Street, Haverhill (Tel. 3430), Thursday, May 2, at 2 P. M. sharp. Candidates should present diplomas to the Secretary one week in advance.

GUSTAVE E. KURTH, M.D., *President.*

J. FORREST BURNHAM, M.D., *Secretary.*
567 Haverhill Street,
Lawrence, Massachusetts.

MASSACHUSETTS GENERAL HOSPITAL

It has been decided to hold a Clinical Staff Meeting, at the Massachusetts General Hospital, on Thursday evening, May 2, 1929, at 8:15, in the Moseley Memorial Building.

PROGRAM

1. Demonstration of Cases.

2. A Clinical Pathological Study of the Various Forms of Arthritis—Dr. Nathaniel Allison and Dr. R. K. Ghormley, from the Orthopaedic Service of the Massachusetts General Hospital.

Physicians, medical students and nurses are invited to attend.

COMMITTEE ON HOSPITAL MEETINGS.

CENSORS' MEETING

The Censors of the Hampden District Medical Society will meet for examination of candidates at Springfield Academy of Medicine, 20 Maple Street, Springfield, on Thursday, May 2, at 4 P. M.

HERVEY L. SMITH, *Secretary.*

249 Union Street, Springfield.

THE AMERICAN ASSOCIATION FOR THE STUDY OF ALLERGY

The American Association for the Study of Allergy will hold its next annual meeting in Portland, Oregon, Monday and Tuesday, July 8 and 9, 1929, at the time of the meeting of the American Medical Association. Further information may be obtained from the Secretary, Warren T. Vaughan, Medical Arts Building, Richmond, Va.

GREATER BOSTON MEDICAL SOCIETY

A meeting of the Society will be held in the Auditorium of the Beth Israel Hospital, Wednesday, May 1, 1929, at 8:15 p. m.

PROGRAM

"Demonstration of a Series of Intracranial Lesions from the Boston City Hospital and the Medical Examiner Service of Suffolk District, Southern Division," by Timothy Leary, M.D., Medical Examiner Suffolk District, Southern Division, and Abraham Myerson, M.D., Visiting Neurologist, Boston City Hospital.

This material covers most of the septic processes arising within the skull and includes a large series of hemorrhagic processes, both pathological and traumatic, illustrating most of the commoner lesions and some unusual ones.

The material will be presented in such manner as to indicate to the general practitioner the signs and symptoms which are significant in diagnosis and prognosis.

General Discussion.

Physicians, medical students, and nurses are cordially invited.

ROBERT SLATER, M.D., *Secretary.*

CENSORS' MEETING

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 2, 1929 at 4.00 o'clock.

Candidates should make personal application to the Secretary, and present their medical diploma at least one week before the examination.

ARTHUR H. CROSBIE, *Secretary.*

520 Commonwealth Avenue, Boston.

THE SEMI-ANNUAL MEETING OF THE NEW HAMPSHIRE SURGICAL CLUB

The thirty-first semi-annual meeting of the New Hampshire Surgical Club will be held at Concord, N. H., Wednesday, May 1, 1929, as follows:

MORNING SESSION

9 A. M. to 11 A. M.—Operative clinic at the Margaret Pillsbury General Hospital.

11 A. M. to 12.30 P. M.—Dry Clinic at the Margaret Pillsbury General Hospital.

1 to 2 P. M.—Lunch at Eagle Hotel. Private room.

Committee in Charge: Carleton R. Metcalf, M.D., Chairman; Robert O. Blood, M.D., James W. Jameson, M.D., Andrew S. MacMillan, M.D., Donald G. McIvor, M.D., Loren A. Sanders, M.D.

AFTERNOON SESSION

Beginning at 2 P. M.

Paper: *Sterility.* George W. Dwinell, M.D.
X-ray Observations. Adelbert S. Merrill, M.D.
Discussion. Eugene B. Eastman, M.D., Philip McQuestion, M.D.

Paper: *Chronic Appendicitis.* W. H. Lacey, M.D.
Discussion. H. N. Kingsford, M.D., James B. Woodman, M.D.

Paper: *Uterine Hemorrhage.* J. Vincent Meigs, M.D., Boston, Mass.

Discussion. Emory Fitch, M.D., Thomas W. Luce, M.D.

The officers of this society are:

President, Daniel C. Norton, M.D., Manchester, N. H.
Vice President, John F. Gile, M.D., Hanover, N. H.
Secretary and Treasurer, John F. Holmes, M.D., Manchester, N. H.

Executive Committee: President, Secretary-Treasurer, ex-officio; Carleton R. Metcalf, M.D., Concord; Timothy F. Rock, M.D., Nashua; A. T. Downing, M.D., Littleton.

JOHN F. HOLMES, M.D., *Secretary.*

SOCIETY MEETINGS

April 26—New England Roentgen Ray Society. Complete notice appears on page 851, issue of April 18.

May 1—Greater Boston Medical Society. Complete notice appears on page 906.

May 1—The Semi-annual meeting of the New Hampshire Surgical Club. Detailed notice appears on page 906.

May 2—Massachusetts General Hospital. Detailed notice appears on page 906.

May 2, 3, and 4—American Climatological and Clinical Association. Detailed notice appears on page 905.

May 5-10—First International Congress on Mental Hygiene. Complete notice appears on page 411, issue of February 21.

June 13—International Hospital Congress. Complete notice appears on page 212, issue of January 24.

July 8-9—American Association for the Study of Allergy. Complete notice appears on page 906.

July 9—American Heart Association. Scientific Meeting from 2 to 6 P. M. in the Auditorium of the Woman's Club, 448 Taylor Street, between 12th and 13th Streets, Portland, Oregon.

October 7-19—New York Academy of Medicine. Detailed notice appears on page 468, issue of February 28.

DISTRICT MEDICAL SOCIETIES

Barnstable District Medical Society

Meeting: May 2, 1929.

Bristol South District Medical Society

May 2—Annual Meeting. Detailed notice appears on page 851, issue of April 18.

Essex North District Medical Society

May 1, 1929 (Wednesday)—Annual meeting at Lawrence General Hospital, One Garden Street, Lawrence, at 12:30 P. M. (Telephone 5156.) Detailed notice appears on page 905.

May 2, 1929 (Thursday)—Censors meet at Hotel Bartlett, 95 Main Street, Haverhill, at 2 P. M. (Tel. 3430.)

Candidates should present their diplomas one week in advance to the Secretary, J. Forrest Burnham, M.D., 567 Haverhill Street, Lawrence.

Essex South District Medical Society

Thursday, May 2, 1929—Censors meet at Salem Hospital, 3:30 P. M. for examination of candidates. Candidates should apply to the Secretary, (Dr. R. E. Stone, Beverly) at least one week prior.

Tuesday, May 14, 1929—Annual Meeting. The Tavern, Gloucester. Speaker: Dr. O. F. Carr, Beverly, Trip around World, Illustrated. Ladies invited. Dancing.

Franklin District Medical Society

Meeting will be held on the second Tuesday of May.

Hampden District Medical Society

May 2—Censors' meeting. Detailed notice appears on page 906.

Middlesex East District Medical Society

The following schedule has been arranged:

May—Melrose.

Subjects and speakers to be arranged by committees in each city or town.

Norfolk District Medical Society

May—Annual meeting program to be announced.

The Censors of the Society meet May 2, 1929, instead of May 9, 1929, at the Roxbury Masonic Temple, 171 Warren Street, Roxbury, at 4 P. M., for the examination of candidates.

Suffolk District Medical Society

May 2—Censors' meeting. Detailed notice appears on page 906.

Worcester District Medical Society

May 8, 1929—Annual meeting. Worcester Country Club.

Worcester North District Medical Society

Annual meeting the fourth Tuesday in April.

BOOK REVIEWS

An Index of Symptomatology. By Various Writers. Edited by H. LETHEBY TIDY, M.A., M.D. Oxon., F.R.C.P. Lond., Assistant Physician, St. Thomas's Hospital; Consulting Physican, Royal Northern Hospital. With one hundred and thirty illustrations, some in color. New York. William Wood and Company. 1929. Pp. 710. Price $12.00.

First of all it is the reviewer's privilege to point out that this book is far more comprehensive and valuable than may be inferred from the title. Although its alphabetical arrangement may justify calling it an index, it includes much more than is usually understood by the term symptomatology. Its scope is better described in the preface: "The general object has been to give a clear and reasonably full description of the clinical manifestations of each disease, without dwelling unduly on minor complications and variations," and "that a student can obtain from its pages a portrait of a disease. . ." Thus the text under the heading of each disease is not confined to the subjective symptoms but includes also the characteristic findings of physical, laboratory, and special diagnosis. The work covers all branches of medicine, surgery, gynecology, and the various special divisions of practice. Thus it includes descriptions of an apparently complete list of all of the abnormal conditions which may affect the human body or mind, and the word picture of each disease is sufficient to insure recognition of all typical instances. These descriptions are contributed by twenty-six men of eminence in British medicine, and the name of the contributor is signed to each separate article. Nevertheless, the overlapping and omissions usually found in compilations are not in evidence and the uniformity of tone in the descriptions leads the reviewer to suspect that the editor is entitled to credit for a larger share of authorship than he modestly claims. The plan under which the book was conceived has been put into execution in an admirable manner.

It is natural to reflect upon the question of how this book may serve the medical student and practitioner, for the ground which it covers descriptively (but without including differential diagnosis or treatment) is ground which is covered more completely by our text books of internal medicine, of surgical diagnosis, and of the specialties in combination. By its arrangement it is hardly adapted to consecutive study. It is, however, so excellently written that one may dip into it at random with much profit. Its value as a reference book is obvious, but it is questionable whether it can be used as the practitioner's chief book of reference, for the descriptions, able as they are, are not quite sufficiently detailed to be completely satisfying. Large as the book is, the reviewer is unable to suppress the thought that it would be still more valuable if it could be expanded by the inclusion of differential diagnosis and treatment. If such an expansion could

be made the work would come nearer than anything that we have to being a single source of general working knowledge on the whole practice of medicine.

The Medical Department of the United States Army in the World War. Volume IV. Activities Concerning Mobilization Camps and Ports of Embarkation. By MAJ. ALBERT S. BOWEN, M. C. Prepared under the direction of Maj. Gen. M. W. Ireland, the Surgeon General. Washington: U. S. Government Printing Office, 1928. Ppg. 494.

This, the fourth volume of the World War Series, gives us in review the story of the mobilization camps and the ports of embarkation.

The magnitude of the task—building in effect great towns—sometimes small cities—in the shortest possible time, so that our troops might be effectively cared for and trained for their over-seas work, is well brought out in the introductory chapter.

Naturally the work of preparing suitable cantonments required the greatest effort, and we are told that in the building of some of these from 10,000 to 14,000 laborers were employed.

The great task that fell upon the Medical Corps in connection with such work, is given an adequate description in the early pages. The problems of camp sanitation, examination of the ever increasing draft contingents, caring for the sick, and maintaining proper isolation units, and proper animal housing, is taken up in detail. Special chapters follow, describing the different national army cantonments, national guard camps, and the important centers of embarkation, such as Hoboken and Newport News.

More than ten years has elapsed since this work was done. To those who had no part in its achievement, in which the Army Medical Corps did so much, the events may seem less real and clear cut than just after the World War.

To such persons a perusal of this volume is especially recommended. To all Americans who read this book a feeling of pride must come, in the contemplation of this work.

A great, and seemingly almost impossible task was well and successfully carried out.

Marriage and the State. MARY E. RICHMOND and FRED S. HALL. New York, Russell Sage Foundation, 1929. Price $2.50.

After a large amount of field work, the authors have written a most instructive book on the administrative side of marriage.

Brief mention of the origin of the marriage license system, and the effect that frontier conditions have had upon the development of that system in this country, provides an interesting introduction.

In Part I the reader is informed as to the procedure necessary to obtain a marriage license; facts are presented that show the necessity for higher standards among license issuers, and existing conditions to evade the law are brought to light.

Part II deals with certain social aspects of marriage, such as youthful and child marriages; hasty marriages; clandestine marriages, and out-of-town marriages.

Part III is concerned with the marriage ceremony —its officiants both civil and ecclesiastical, with suggested remedies for the present situation regarding the former, and commendation of the latter. Indeed, the authors believe that ministers are better fitted as advisers, are more conscientious than civil officiants, and once they are conversant with the social disabilities of marriage, the church, fast becoming more concerned about the subject, not only in the interest of religion, but of good citizenship, will be the most powerful factor to bring about reform.

Part IV stresses the importance of better records and of state supervision rather than Federal control. To bring about these changes, methods of procedure are introduced, and finally, to advocate of marriage reform, a plea for action.

Here is a book that shows the result of conscientious study, full of information regarding the subject under present day conditions, with logical remedial suggestions—one that should be particularly interesting to court officials, lawyers, doctors, clergymen and social workers, and instrumental in bringing about such a reform.

Les Phénomènes de Répercussivité. By ANDRÉ-THOMAS. Masson et cie., Paris, 1929. 243 pages. 32 fr.

Dr. André-Thomas has continued his well known work on the sympathetic nervous system in a new book entitled, "The Phenomena of Repercussion." He bases his arguments on the supposition that organs of the body have biological connections which regulate their functions, one with another. This reaction is spoken of, broadly, as "sympathy." When the connection is affected through the nervous system, Dr. André-Thomas uses the term "repercussion." He speaks of well known examples of repercussion, such as the pilomotor, sweating, and vasomotor reflexes. To this group of reactions, which he has previously carefully studied, he adds a larger group, including such diseases as epilepsy, migraine, angina pectoris and asthma. These he believes are excessive reactions of the same type in persons of congenital predisposition. He applies the principles established by the simpler reflexes to these more definite disease entities.

The book, while theoretical and written in the spirit of hypothetical investigation, may possibly have a practical value in relation to the treatment of epilepsy and allied disorders, if the theory advanced by Dr. André-Thomas is accepted and proves to have clinical applicability.

What Everyone Should Know About Eyes. By F. PARK LEWIS, M.D., F.A.C.S. The National Health Series. Funk and Wagnalls Company.

This useful little book is well written and presents a large number of facts in simple language so that they can be grasped by laymen. The views of the writer are generally sound, but we cannot regard as proved the dictum that suppression of the image in an eye in the course of time leads to permanent loss of sight. Nor do we believe that small amounts of astigmatism can have a profound effect on the general physical welfare. Nor is there any sound proof that the treatment of beginning cataract with lens preparation is of any value.

Otherwise the book is to be recommended for the purpose for which it is written.